```
 * * * * * * * * * * * * * STN  Columbus  * * * * * * * * * * * * * *
FILE 'HOME' ENTERED AT 15:20:46 ON 17 SEP 2003
=> file biosis,caba,caplus,embase,japio,lifesci,medline,scisearch,uspatfull
=> e qiu bo/au
E1          1    QIU BISHENG/AU
E2          8    QIU BIYUN/AU
E3         50 --> QIU BO/AU
E4          1    QIU BO CANG/AU
E5          1    QIU BO QIN/AU
E6          2    QIU BO S/AU
E7          6    QIU BO SHENG/AU
E8          5    QIU BOCANG/AU
E9          1    QIU BOGIN/AU
E10         1    QIU BOLING/AU
E11        12    QIU BOQIN/AU
E12        20    QIU BOSHENG/AU

=> s e3-e12 and borrel?
L1          6 ("QIU BO"/AU OR "QIU BO CANG"/AU OR "QIU BO QIN"/AU OR "QIU BO
              S"/AU OR "QIU BO SHENG"/AU OR "QIU BOCANG"/AU OR "QIU BOGIN"/AU
              OR "QIU BOLING"/AU OR "QIU BOQIN"/AU OR "QIU BOSHENG"/AU) AND
              BORREL?

=> dup rem l1
PROCESSING COMPLETED FOR L1
L2          5 DUP REM L1 (1 DUPLICATE REMOVED)

=> d bib ab 1-
YOU HAVE REQUESTED DATA FROM 5 ANSWERS - CONTINUE? Y/(N):y


L2  ANSWER 1 OF 5  USPATFULL on STN
AN    2003:57562  USPATFULL
TI    Multiple epitopes connected by a carrier
IN      ***Qiu, Bo***  , Piscataway, NJ, UNITED STATES
      Stein, Stanley, East Brunswick, NJ, UNITED STATES
      Zhang, Guobao, Piscataway, NJ, UNITED STATES
      Sigal, Leonard, Plainfield, NJ, UNITED STATES
      Brunner, Michael, Columbus, NJ, UNITED STATES
      Katz, Michael, Freehold, NJ, UNITED STATES
PI    US 2003040127      A1   20030227
AI    US 2001-982287     A1   20011017 (9)
PRAI  US 2000-242819P    20001024 (60)
DT    Utility
FS    APPLICATION
LREP  UMDNJ Office of Patents & Licensing, 335 George Street, Suite 3200, New
      Brunswick, NJ, 08901
CLMN  Number of Claims: 12
```

ECL Exemplary Claim: 1
DRWN 4 Drawing Page(s)
LN.CNT 799
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Immunologically invisible carrier molecules connect a plurality of copies of an immunologically active molecule in an immunologic assay

L2 ANSWER 2 OF 5 USPATFULL on STN
AN 2003:57561 USPATFULL
TI Immunological test kit with immunologically invisible carrier
IN ***Qiu, Bo*** , East Brunswick, NJ, UNITED STATES
Zhang, Guobao, Piscataway, NJ, UNITED STATES
Stein, Stanley, East Brunswick, NJ, UNITED STATES
Sigal, Leonard H., Plainfield, NJ, UNITED STATES
Brunner, Michael, Columbus, NJ, UNITED STATES
Katz, Michael, Freehold, NJ, UNITED STATES
PI US 2003040126 A1 20030227
AI US 2001-982265 A1 20011017 (9)
PRAI US 2000-242819P 20001024 (60)
DT Utility
FS APPLICATION
LREP LYON & LYON LLP, 633 WEST FIFTH STREET, SUITE 4700, LOS ANGELES, CA, 90071
CLMN Number of Claims: 8
ECL Exemplary Claim: 1
DRWN 4 Drawing Page(s)
LN.CNT 789
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Immunologically invisible carrier molecules connect a plurality of copies of an immunologically active molecule in an immunologic assay.

L2 ANSWER 3 OF 5 USPATFULL on STN
AN 2003:44364 USPATFULL
TI Poly (ethylene glycol) copolymers
IN ***Qiu, Bo*** , East Brunswick, NJ, UNITED STATES
Zhang, Guobao, Piscataway, NJ, UNITED STATES
Stein, Stanley, East Brunswick, NJ, UNITED STATES
Sigal, Leonard, Plainfield, NJ, UNITED STATES
Brunner, Michael, Columbus, NJ, UNITED STATES
Katz, Michael, Freehold, NJ, UNITED STATES
PI US 2003031674 A1 20030213
AI US 2001-982300 A1 20011017 (9)
PRAI US 2000-242819P 20001024 (60)
DT Utility
FS APPLICATION
LREP LYON & LYON LLP, 633 WEST FIFTH STREET, SUITE 4700, LOS ANGELES, CA, 90071
CLMN Number of Claims: 7

ECL Exemplary Claim: 1
DRWN 4 Drawing Page(s)
LN.CNT 793
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Immunologically invisible carrier molecules connect a plurality of copies of an immunologically active molecule in an immunologic assay.

L2 ANSWER 4 OF 5 CAPLUS COPYRIGHT 2003 ACS on STN DUPLICATE 1
AN 2002:595415 CAPLUS
DN 137:137266
TI Immunological test kit with ***Borrelia*** burgdorferi epitope
IN ***Qiu, Bo*** ; Stein, Stanley; Zhang, Guobao; Sigal, Leonard; Brunner, Michael; Katz, Michael
PA USA
SO U.S. Pat. Appl. Publ., 14 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2002106706	A1	20020808	US 2001-982264	20011017
US 2002197271	A1	20021226	US 2001-982259	20011017
US 2003031674	A1	20030213	US 2001-982300	20011017
US 2003040126	A1	20030227	US 2001-982265	20011017
US 2003040127	A1	20030227	US 2001-982287	20011017

PRAI US 2000-242819P P 20001024
AB ***Borrelia*** burgdorferi peptide epitopes are conjugated to PEG copolymer and biotin. These peptide conjugates are then used in test kits, such as ELISA, for detection of anti- ***Borrelia*** antibodies in human serum and hence diagnosis of Lyme disease.

L2 ANSWER 5 OF 5 USPATFULL on STN
AN 2002:343548 USPATFULL
TI Borellia burgdorferi epitope peptides
IN ***Qiu, Bo*** , East Brunswick, NJ, UNITED STATES
Zhang, Guobao, Piscataway, NJ, UNITED STATES
Stein, Stanely, East Brunswick, NJ, UNITED STATES
Sigal, Leonard, Plainfield, NJ, UNITED STATES
Brunner, Michael, Columbus, NJ, UNITED STATES
Katz, Michael, Freehold, NJ, UNITED STATES
PI US 2002197271 A1 20021226
AI US 2001-982259 A1 20011017 (9)
PRAI US 2000-242819P 20001024 (60)
DT Utility
FS APPLICATION
LREP LYON & LYON LLP, 633 WEST FIFTH STREET, SUITE 4700, LOS ANGELES, CA, 90071

CLMN Number of Claims: 45
ECL Exemplary Claim: 1
DRWN 4 Drawing Page(s)
LN.CNT 902
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Immunologically invisible carrier molecules connect a plurality of copies of an immunologically active molecule in an immunologic assay.

=> e zhang guobao/au
E1 39 ZHANG GUOAN/AU
E2 1 ZHANG GUOBANG/AU
E3 54 --> ZHANG GUOBAO/AU
E4 2 ZHANG GUOBEN/AU
E5 18 ZHANG GUOBIAO/AU
E6 1 ZHANG GUOBIEN/AU
E7 31 ZHANG GUOBIN/AU
E8 2 ZHANG GUOBIN B/AU
E9 37 ZHANG GUOBING/AU
E10 1 ZHANG GUOBOA/AU
E11 1 ZHANG GUOC CHENG/AU
E12 17 ZHANG GUOCAI/AU

=> s e2-e12 and borrel?
L3 6 ("ZHANG GUOBANG"/AU OR "ZHANG GUOBAO"/AU OR "ZHANG GUOBEN"/AU OR "ZHANG GUOBIAO"/AU OR "ZHANG GUOBIEN"/AU OR "ZHANG GUOBIN"/AU OR "ZHANG GUOBIN B"/AU OR "ZHANG GUOBING"/AU OR "ZHANG GUOBOA"/AU OR "ZHANG GUOC CHENG"/AU OR "ZHANG GUOCAI"/AU) AND BORREL?

=> dup rem l3
PROCESSING COMPLETED FOR L3
L4 5 DUP REM L3 (1 DUPLICATE REMOVED)

=> d bib ab 1-
YOU HAVE REQUESTED DATA FROM 5 ANSWERS - CONTINUE? Y/(N):y

L4 ANSWER 1 OF 5 USPATFULL on STN
AN 2003:57562 USPATFULL
TI Multiple epitopes connected by a carrier
IN Qiu, Bo, Piscataway, NJ, UNITED STATES
Stein, Stanley, East Brunswick, NJ, UNITED STATES
Zhang, Guobao , Piscataway, NJ, UNITED STATES
Sigal, Leonard, Plainfield, NJ, UNITED STATES
Brunner, Michael, Columbus, NJ, UNITED STATES
Katz, Michael, Freehold, NJ, UNITED STATES
PI US 2003040127 A1 20030227
AI US 2001-982287 A1 20011017 (9)

PRAI US 2000-242819P 20001024 (60)
DT Utility
FS APPLICATION
LREP UMDNJ Office of Patents & Licensing, 335 George Street, Suite 3200, New Brunswick, NJ, 08901
CLMN Number of Claims: 12
ECL Exemplary Claim: 1
DRWN 4 Drawing Page(s)
LN.CNT 799
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Immunologically invisible carrier molecules connect a plurality of copies of an immunologically active molecule in an immunologic assay

L4 ANSWER 2 OF 5 USPATFULL on STN
AN 2003:57561 USPATFULL
TI Immunological test kit with immunologically invisible carrier
IN Qiu, Bo, East Brunswick, NJ, UNITED STATES
Zhang, Guobao , Piscataway, NJ, UNITED STATES
Stein, Stanley, East Brunswick, NJ, UNITED STATES
Sigal, Leonard H., Plainfield, NJ, UNITED STATES
Brunner, Michael, Columbus, NJ, UNITED STATES
Katz, Michael, Freehold, NJ, UNITED STATES
PI US 2003040126 A1 20030227
AI US 2001-982265 A1 20011017 (9)
PRAI US 2000-242819P 20001024 (60)
DT Utility
FS APPLICATION
LREP LYON & LYON LLP, 633 WEST FIFTH STREET, SUITE 4700, LOS ANGELES, CA, 90071
CLMN Number of Claims: 8
ECL Exemplary Claim: 1
DRWN 4 Drawing Page(s)
LN.CNT 789
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Immunologically invisible carrier molecules connect a plurality of copies of an immunologically active molecule in an immunologic assay.

L4 ANSWER 3 OF 5 USPATFULL on STN
AN 2003:44364 USPATFULL
TI Poly (ethylene glycol) copolymers
IN Qiu, Bo, East Brunswick, NJ, UNITED STATES
Zhang, Guobao , Piscataway, NJ, UNITED STATES
Stein, Stanley, East Brunswick, NJ, UNITED STATES
Sigal, Leonard, Plainfield, NJ, UNITED STATES
Brunner, Michael, Columbus, NJ, UNITED STATES
Katz, Michael, Freehold, NJ, UNITED STATES
PI US 2003031674 A1 20030213
AI US 2001-982300 A1 20011017 (9)

PRAI US 2000-242819P 20001024 (60)
DT Utility
FS APPLICATION
LREP LYON & LYON LLP, 633 WEST FIFTH STREET, SUITE 4700, LOS ANGELES, CA, 90071
CLMN Number of Claims: 7
ECL Exemplary Claim: 1
DRWN 4 Drawing Page(s)
LN.CNT 793
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Immunologically invisible carrier molecules connect a plurality of copies of an immunologically active molecule in an immunologic assay.

L4 ANSWER 4 OF 5 CAPLUS COPYRIGHT 2003 ACS on STN DUPLICATE 1
AN 2002:595415 CAPLUS
DN 137:137266
TI Immunological test kit with ***Borrelia*** burgdorferi epitope
IN Qiu, Bo; Stein, Stanley; ***Zhang, Guobao*** ; Sigal, Leonard; Brunner, Michael; Katz, Michael
PA USA
SO U.S. Pat. Appl. Publ., 14 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2002106706	A1	20020808	US 2001-982264	20011017
US 2002197271	A1	20021226	US 2001-982259	20011017
US 2003031674	A1	20030213	US 2001-982300	20011017
US 2003040126	A1	20030227	US 2001-982265	20011017
US 2003040127	A1	20030227	US 2001-982287	20011017

PRAI US 2000-242819P P 20001024
AB ***Borrelia*** burgdorferi peptide epitopes are conjugated to PEG copolymer and biotin. These peptide conjugates are then used in test kits, such as ELISA, for detection of anti- ***Borrelia*** antibodies in human serum and hence diagnosis of Lyme disease.

L4 ANSWER 5 OF 5 USPATFULL on STN
AN 2002:343548 USPATFULL
TI Borellia burgdorferi epitope peptides
IN Qiu, Bo, East Brunswick, NJ, UNITED STATES
Zhang, Guobao , Piscataway, NJ, UNITED STATES
Stein, Stanely, East Brunswick, NJ, UNITED STATES
Sigal, Leonard, Plainfield, NJ, UNITED STATES
Brunner, Michael, Columbus, NJ, UNITED STATES
Katz, Michael, Freehold, NJ, UNITED STATES
PI US 2002197271 A1 20021226

AI US 2001-982259 A1 20011017 (9)
PRAI US 2000-242819P 20001024 (60)
DT Utility
FS APPLICATION
LREP LYON & LYON LLP, 633 WEST FIFTH STREET, SUITE 4700, LOS ANGELES, CA, 90071
CLMN Number of Claims: 45
ECL Exemplary Claim: 1
DRWN 4 Drawing Page(s)
LN.CNT 902
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Immunologically invisible carrier molecules connect a plurality of copies of an immunologically active molecule in an immunologic assay.

=> e stein stanley/au
E1 3 STEIN STACEY M/AU
E2 2 STEIN STANELY/AU
E3 199 --> STEIN STANLEY/AU
E4 1 STEIN STANLEY A/AU
E5 1 STEIN STANLEY H/AU
E6 1 STEIN STANLEY I/AU
E7 48 STEIN STEFAN/AU
E8 1 STEIN STEFAN DIPL CHEM/AU
E9 1 STEIN STEFAN DR/AU
E10 1 STEIN STEFAN M/AU
E11 4 STEIN STEFANI J/AU
E12 3 STEIN STEFANIE/AU

=> s e2-e6 and borrel?
L5 14 ("STEIN STANELY"/AU OR "STEIN STANLEY"/AU OR "STEIN STANLEY A"/AU OR "STEIN STANLEY H"/AU OR "STEIN STANLEY I"/AU) AND BORREL?

=> dup rem l5
PROCESSING COMPLETED FOR L5
L6 10 DUP REM L5 (4 DUPLICATES REMOVED)

=> d bib ab 1-
YOU HAVE REQUESTED DATA FROM 10 ANSWERS - CONTINUE? Y/(N):y

L6 ANSWER 1 OF 10 USPATFULL on STN
AN 2003:57562 USPATFULL
TI Multiple epitopes connected by a carrier
IN Qiu, Bo, Piscataway, NJ, UNITED STATES
Stein, Stanley , East Brunswick, NJ, UNITED STATES
Zhang, Guobao, Piscataway, NJ, UNITED STATES

Sigal, Leonard, Plainfield, NJ, UNITED STATES
Brunner, Michael, Columbus, NJ, UNITED STATES
Katz, Michael, Freehold, NJ, UNITED STATES
PI US 2003040127 A1 20030227
AI US 2001-982287 A1 20011017 (9)
PRAI US 2000-242819P 20001024 (60)
DT Utility
FS APPLICATION
LREP UMDNJ Office of Patents & Licensing, 335 George Street, Suite 3200, New Brunswick, NJ, 08901
CLMN Number of Claims: 12
ECL Exemplary Claim: 1
DRWN 4 Drawing Page(s)
LN.CNT 799
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Immunologically invisible carrier molecules connect a plurality of copies of an immunologically active molecule in an immunologic assay

L6 ANSWER 2 OF 10 USPATFULL on STN
AN 2003:57561 USPATFULL
TI Immunological test kit with immunologically invisible carrier
IN Qiu, Bo, East Brunswick, NJ, UNITED STATES
Zhang, Guobao, Piscataway, NJ, UNITED STATES
Stein, Stanley , East Brunswick, NJ, UNITED STATES
Sigal, Leonard H., Plainfield, NJ, UNITED STATES
Brunner, Michael, Columbus, NJ, UNITED STATES
Katz, Michael, Freehold, NJ, UNITED STATES
PI US 2003040126 A1 20030227
AI US 2001-982265 A1 20011017 (9)
PRAI US 2000-242819P 20001024 (60)
DT Utility
FS APPLICATION
LREP LYON & LYON LLP, 633 WEST FIFTH STREET, SUITE 4700, LOS ANGELES, CA, 90071
CLMN Number of Claims: 8
ECL Exemplary Claim: 1
DRWN 4 Drawing Page(s)
LN.CNT 789
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Immunologically invisible carrier molecules connect a plurality of copies of an immunologically active molecule in an immunologic assay.

L6 ANSWER 3 OF 10 USPATFULL on STN
AN 2003:44364 USPATFULL
TI Poly (ethylene glycol) copolymers
IN Qiu, Bo, East Brunswick, NJ, UNITED STATES
Zhang, Guobao, Piscataway, NJ, UNITED STATES
Stein, Stanley , East Brunswick, NJ, UNITED STATES

Sigal, Leonard, Plainfield, NJ, UNITED STATES
Brunner, Michael, Columbus, NJ, UNITED STATES
Katz, Michael, Freehold, NJ, UNITED STATES
PI US 2003031674 A1 20030213
AI US 2001-982300 A1 20011017 (9)
PRAI US 2000-242819P 20001024 (60)
DT Utility
FS APPLICATION
LREP LYON & LYON LLP, 633 WEST FIFTH STREET, SUITE 4700, LOS ANGELES, CA, 90071
CLMN Number of Claims: 7
ECL Exemplary Claim: 1
DRWN 4 Drawing Page(s)
LN.CNT 793
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Immunologically invisible carrier molecules connect a plurality of copies of an immunologically active molecule in an immunologic assay.

L6 ANSWER 4 OF 10 CAPLUS COPYRIGHT 2003 ACS on STN DUPLICATE 1
AN 2002:595415 CAPLUS
DN 137:137266
TI Immunological test kit with ***Borrelia*** burgdorferi epitope
IN Qiu, Bo; ***Stein, Stanley*** ; Zhang, Guobao; Sigal, Leonard; Brunner, Michael; Katz, Michael
PA USA
SO U.S. Pat. Appl. Publ., 14 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2002106706	A1	20020808	US 2001-982264	20011017
US 2002197271	A1	20021226	US 2001-982259	20011017
US 2003031674	A1	20030213	US 2001-982300	20011017
US 2003040126	A1	20030227	US 2001-982265	20011017
US 2003040127	A1	20030227	US 2001-982287	20011017

PRAI US 2000-242819P P 20001024
AB ***Borrelia*** burgdorferi peptide epitopes are conjugated to PEG copolymer and biotin. These peptide conjugates are then used in test kits, such as ELISA, for detection of anti- ***Borrelia*** antibodies in human serum and hence diagnosis of Lyme disease.

L6 ANSWER 5 OF 10 USPATFULL on STN
AN 2002:343548 USPATFULL
TI Borellia burgdorferi epitope peptides
IN Qiu, Bo, East Brunswick, NJ, UNITED STATES
Zhang, Guobao, Piscataway, NJ, UNITED STATES

Stein, Stanely , East Brunswick, NJ, UNITED STATES
Sigal, Leonard, Plainfield, NJ, UNITED STATES
Brunner, Michael, Columbus, NJ, UNITED STATES
Katz, Michael, Freehold, NJ, UNITED STATES
PI US 2002197271 A1 20021226
AI US 2001-982259 A1 20011017 (9)
PRAI US 2000-242819P 20001024 (60)
DT Utility
FS APPLICATION
LREP LYON & LYON LLP, 633 WEST FIFTH STREET, SUITE 4700, LOS ANGELES, CA, 90071
CLMN Number of Claims: 45
ECL Exemplary Claim: 1
DRWN 4 Drawing Page(s)
LN.CNT 902
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Immunologically invisible carrier molecules connect a plurality of copies of an immunologically active molecule in an immunologic assay.

L6 ANSWER 6 OF 10 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN DUPLICATE 2
AN 1998:229543 BIOSIS
DN PREV199800229543
TI Immunoglobulin M capture assay for serologic confirmation of early Lyme disease: Analysis of immune complexes with biotinylated ***Borrelia*** burgdorferi sonicate enhanced with flagellin peptide epitope.
AU Brunner, Michael; ***Stein, Stanley*** ; Mitchell, Paul D.; Sigal, Leonard H. (1)
CS (1) 1 Robert Wood Johnson Place MEB 484, New Brunswick, NJ 08903-0019 USA
SO Journal of Clinical Microbiology, (April, 1998) Vol. 36, No. 4, pp. 1074-1080.
ISSN: 0095-1137.
DT Article
LA English
AB We previously reported on the efficacy of the enzyme-linked immunoglobulin M capture immune complex (IC) biotinylated antigen assay (EMIBA) for the seroconfirmation of early Lyme disease and active infection with ***Borrelia*** burgdorferi. In earlier work we identified non-cross-reacting epitopes of a number of B. burgdorferi proteins, including flagellin. We now report on an improvement in the performance of EMIBA with the addition of a biotinylated form of a synthetic non-cross-reacting immunodominant flagellin peptide to the biotinylated B. burgdorferi B31 sonicate antigen source with the avidin-biotinylated peroxidase complex detection system used in our recently developed indirect IgM-capture immune complex-based assay (EMIBA). As in our previous studies, the enzyme-linked immunosorbent assay (ELISA) reactivities of antibodies liberated from circulating ICs (by EMIBA) were compared with those of antibodies in unprocessed serum (antibodies found

free in the serum, thus as an IgM-capture ELISA, but not EMIBA, because the antibodies were not liberated from ICs), the sample usually used in standard ELISAs and Western blot assays. The addition of the flagellin epitope enhanced the ELISA signal obtained with untreated sera from many Lyme disease patients but not from healthy controls. In tests with both free antibodies and ICs, with or without the addition of the flagellin epitope to the sonicate, we found the most advantageous combination was IC as the source of antibodies and sonicate plus the flagellin epitope as the antigen. In a blinded study of sera obtained from patients with early and later-phase Lyme disease, EMIBA with the enhanced antigenic preparation compared favorably with other serologic assays, especially for the confirmation of early disease.

L6 ANSWER 7 OF 10 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
AN 1998:157597 BIOSIS
DN PREV199800157597
TI Enzyme-linked IgM capture immune complex biotinylated-antigen assay (EMIBA) detection of anti-B. burgdorferi (Bb) antibodies: A new immunoassay for early and active Lyme disease (LD.
AU Brunner, Michael; ***Stein, Stanley*** ; Sigal, Leonard
CS UMDNJ-Robert Wood Johnson Med. Sch., New Brunswick, NJ 08903 USA
SO Arthritis & Rheumatism, (Sept., 1997) Vol. 40, No. 9 SUPPL., pp. S142. Meeting Info.: 61st National Scientific Meeting of the American College of Rheumatology and the 32nd National Scientific Meeting of the Association of Rheumatology Health Professionals Washington, DC, USA November 8-12, 1997 Association of Rheumatology Health Professionals . ISSN: 0004-3591.
DT Conference
LA English

L6 ANSWER 8 OF 10 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN DUPLICATE 3
AN 1996:317123 BIOSIS
DN PREV199699039479
TI Presentation of peptide antigens as albumin conjugates for use in detection of serum antibodies by enzyme-linked immunosorbent assay.
AU Yu, Zhiguang; Carter, John Mark; Huang, Shaei-Yun; Lackland, Henry; Sigal, Leonard H.; ***Stein, Stanley (1)***
CS (1) Cent. Adv. Biotechnol. and Med., 679 Hoes Lane, Piscataway, NJ 08854 USA
SO Bioconjugate Chemistry, (1996) Vol. 7, No. 3, pp. 338-342. ISSN: 1043-1802.
DT Article
LA English
AB The use of linear peptides as antigens for detection of serum antibodies has been studied using a sequence of the ***Borrelia*** burgdorferi protein, flagellin, and Lyme disease sera as a model. It was found that a novel presentation of the peptide as a hapten on the carrier protein,

bovine serum albumin, in the enzyme-linked immunosorbent assay format can be successfully applied to distinguish between Lyme disease and control sera.

L6 ANSWER 9 OF 10 CAPLUS COPYRIGHT 2003 ACS on STN
AN 1996:609238 CAPLUS
DN 125:298896
TI Multi-well ELISA based on independent peptide antigens for antibody capture. Application to Lyme disease serodiagnosis
AU Yu, Zhiguang; Carter, John Mark; Sigal, Leonard H.; ***Stein, Stanley***
CS Center for Advanced Biotechnology and Medicine, 679 Hoes Lane, Piscataway, NJ, USA
SO Journal of Immunological Methods (1996), 198(1), 25-33
CODEN: JIMMBG; ISSN: 0022-1759
PB Elsevier
DT Journal
LA English
AB Novel procedures for the use of peptides as antibody-capture reagents in the ELISA format have been investigated. Epitope sequences from known immunodominant antigens of ***Borrelia*** burgdorferi were selected by screening peptide libraries with sera from patients with Lyme disease. Several epitope peptides were synthesized and immobilized, sep., on the ELISA plate as haptens on bovine serum albumin. Based on a comparative anal. of serum samples, it appears that peptide antigens can be used as effectively as a whole cell lysate to discriminate between Lyme disease and non-Lyme disease sera, thus avoiding dependence on bacterial sonicates which vary from passage to passage. Further improvements in epitope design for enhancement of accuracy in serodiagnosis are discussed.

L6 ANSWER 10 OF 10 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
DUPLICATE 4
AN 1993:253223 BIOSIS
DN PREV199395132398
TI Molecular mimicry in Lyme disease: Monoclonal antibody H9724 to ***Borrelia*** burgdorferi flagellin specifically detects chaperonin-HSP60.
AU Dai, Zhizhong; Lackland, Henry; ***Stein, Stanley*** ; Li, Qian; Radziewicz, Robin; Williams, Stephanie; Sigal, Leonard H. (1)
CS (1) Dep. Med., 1 Robert Wood Johnson Place, New Brunswick, NJ 08903 USA
SO Biochimica et Biophysica Acta, (1993) Vol. 1181, No. 1, pp. 97-100.
ISSN: 0006-3002.
DT Article
LA English
AB A monoclonal antibody (H9724), specific for the 41-kDa flagellar protein of the Lyme disease pathogen ***Borrelia*** burgdorferi, cross-reacts with human axons and detects one major protein in human neuroblastoma cell extracts. The homologous cross-reacting protein has now been isolated from calf adrenal and identified as chaperonin-HSP60 by N-terminal sequencing.

=> e sigal leonard/au
E1 4 SIGAL LEON J/AU
E2 4 SIGAL LEON JACOB/AU
E3 9 --> SIGAL LEONARD/AU
E4 103 SIGAL LEONARD H/AU
E5 10 SIGAL LORENE L/AU
E6 1 SIGAL LORENE LIVINGSTONE/AU
E7 26 SIGAL LUIS J/AU
E8 5 SIGAL LUIS JAVIER/AU
E9 258 SIGAL M/AU
E10 52 SIGAL M A/AU
E11 31 SIGAL M B/AU
E12 14 SIGAL M D/AU

=> s e3-e4 and borrel?
L7 62 ("SIGAL LEONARD"/AU OR "SIGAL LEONARD H"/AU) AND BORREL?

=> dup rem l7
PROCESSING COMPLETED FOR L7
L8 46 DUP REM L7 (16 DUPLICATES REMOVED)

=> d bib ab 1-
YOU HAVE REQUESTED DATA FROM 46 ANSWERS - CONTINUE? Y/(N):y

L8 ANSWER 1 OF 46 MEDLINE on STN
AN 2003045988 MEDLINE
DN 22430378 PubMed ID: 12543295
TI Toward a more complete appreciation of the clinical spectrum of ***Borrelia*** burgdorferi infection: early Lyme disease without erythema migrans.
CM Comment on: Am J Med. 2003 Jan;114(1):58-62
AU ***Sigal Leonard H***
SO AMERICAN JOURNAL OF MEDICINE, (2003 Jan) 114 (1) 74-5.
Journal code: 0267200. ISSN: 0002-9343.
CY United States
DT Commentary
Editorial
LA English
FS Abridged Index Medicus Journals; Priority Journals
EM 200303
ED Entered STN: 20030131
Last Updated on STN: 20030318
Entered Medline: 20030317

L8 ANSWER 2 OF 46 USPATFULL on STN

AN 2003:57562 USPATFULL
TI Multiple epitopes connected by a carrier
IN Qiu, Bo, Piscataway, NJ, UNITED STATES
Stein, Stanley, East Brunswick, NJ, UNITED STATES
Zhang, Guobao, Piscataway, NJ, UNITED STATES
Sigal, Leonard , Plainfield, NJ, UNITED STATES
Brunner, Michael, Columbus, NJ, UNITED STATES
Katz, Michael, Freehold, NJ, UNITED STATES
PI US 2003040127 A1 20030227
AI US 2001-982287 A1 20011017 (9)
PRAI US 2000-242819P 20001024 (60)
DT Utility
FS APPLICATION
LREP UMDNJ Office of Patents & Licensing, 335 George Street, Suite 3200, New Brunswick, NJ, 08901
CLMN Number of Claims: 12
ECL Exemplary Claim: 1
DRWN 4 Drawing Page(s)
LN.CNT 799
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Immunologically invisible carrier molecules connect a plurality of copies of an immunologically active molecule in an immunologic assay

L8 ANSWER 3 OF 46 USPATFULL on STN
AN 2003:57561 USPATFULL
TI Immunological test kit with immunologically invisible carrier
IN Qiu, Bo, East Brunswick, NJ, UNITED STATES
Zhang, Guobao, Piscataway, NJ, UNITED STATES
Stein, Stanley, East Brunswick, NJ, UNITED STATES
Sigal, Leonard H. , Plainfield, NJ, UNITED STATES
Brunner, Michael, Columbus, NJ, UNITED STATES
Katz, Michael, Freehold, NJ, UNITED STATES
PI US 2003040126 A1 20030227
AI US 2001-982265 A1 20011017 (9)
PRAI US 2000-242819P 20001024 (60)
DT Utility
FS APPLICATION
LREP LYON & LYON LLP, 633 WEST FIFTH STREET, SUITE 4700, LOS ANGELES, CA, 90071
CLMN Number of Claims: 8
ECL Exemplary Claim: 1
DRWN 4 Drawing Page(s)
LN.CNT 789
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Immunologically invisible carrier molecules connect a plurality of copies of an immunologically active molecule in an immunologic assay.

L8 ANSWER 4 OF 46 USPATFULL on STN

AN 2003:44364 USPATFULL
TI Poly (ethylene glycol) copolymers
IN Qiu, Bo, East Brunswick, NJ, UNITED STATES
Zhang, Guobao, Piscataway, NJ, UNITED STATES
Stein, Stanley, East Brunswick, NJ, UNITED STATES
Sigal, Leonard , Plainfield, NJ, UNITED STATES
Brunner, Michael, Columbus, NJ, UNITED STATES
Katz, Michael, Freehold, NJ, UNITED STATES
PI US 2003031674 A1 20030213
AI US 2001-982300 A1 20011017 (9)
PRAI US 2000-242819P 20001024 (60)
DT Utility
FS APPLICATION
LREP LYON & LYON LLP, 633 WEST FIFTH STREET, SUITE 4700, LOS ANGELES, CA, 90071
CLMN Number of Claims: 7
ECL Exemplary Claim: 1
DRWN 4 Drawing Page(s)
LN.CNT 793
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Immunologically invisible carrier molecules connect a plurality of copies of an immunologically active molecule in an immunologic assay.

L8 ANSWER 5 OF 46 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
DUPLICATE 1
AN 2003:163511 BIOSIS
DN PREV200300163511
TI High expression of Fas ligand by synovial fluid-derived gammadelta T cells in Lyme arthritis.
AU Roessner, Karen; Wolfe, Julie; Shi, Cuixia; ***Sigal, Leonard H.*** ; Huber, Sally; Budd, Ralph C. (1)
CS (1) Immunobiology Program, College of Medicine, University of Vermont, 89 Beaumont Avenue, Given Medical Building, D-305, Burlington, VT, 05405-0068, USA: rbudd@zoo.uvm.edu USA
SO Journal of Immunology, (March 1 2003) Vol. 170, No. 5, pp. 2702-2710. print.
ISSN: 0022-1767.
DT Article
LA English
AB gammadelta T cells accumulate at epithelial barriers and at sites of inflammation in various infectious and autoimmune diseases, yet little is understood about the function of tissue-infiltrating gammadelta T cells. We observe that gammadelta T cells of the Vdelta1 subset accumulate in synovial fluid of human Lyme arthritis and are intensely cytolytic toward a wide array of target cells. Particularly striking is that the cytolytic activity is highly prolonged, lasting for at least 3 wk after stimulation of the gammadelta T cells with ***Borrelia*** burgdorferi. Cytolysis is largely Fas dependent and results from very high and prolonged

expression of surface Fas ligand, which is transcriptionally regulated. This also manifests in a substantial level of self-induced apoptosis of the gammadelta T cells. In this capacity, certain gammadelta T cell subsets may serve as cytolytic sentinels at sites of inflammation, and perhaps at epithelial barriers.

L8 ANSWER 6 OF 46 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
AN 2002:602522 BIOSIS
DN PREV200200602522
TI In response.
AU ***Sigal, Leonard H. (1)***
CS (1) UMDNJ-Robert Wood Johnson Medical School, New Brunswick, NJ, 08903 USA
SO Annals of Internal Medicine, (5 November, 2002) Vol. 137, No. 9, pp. 776-777. http://www.annals.org/. print.
ISSN: 0003-4819.
DT Letter
LA English

L8 ANSWER 7 OF 46 CAPLUS COPYRIGHT 2003 ACS on STN DUPLICATE 2
AN 2002:595415 CAPLUS
DN 137:137266
TI Immunological test kit with ***Borrelia*** burgdorferi epitope
IN Qiu, Bo; Stein, Stanley; Zhang, Guobao; ***Sigal, Leonard*** ; Brunner, Michael; Katz, Michael
PA USA
SO U.S. Pat. Appl. Publ., 14 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2002106706	A1	20020808	US 2001-982264	20011017
US 2002197271	A1	20021226	US 2001-982259	20011017
US 2003031674	A1	20030213	US 2001-982300	20011017
US 2003040126	A1	20030227	US 2001-982265	20011017
US 2003040127	A1	20030227	US 2001-982287	20011017

PRAI US 2000-242819P P 20001024
AB ***Borrelia*** burgdorferi peptide epitopes are conjugated to PEG copolymer and biotin. These peptide conjugates are then used in test kits, such as ELISA, for detection of anti- ***Borrelia*** antibodies in human serum and hence diagnosis of Lyme disease.

L8 ANSWER 8 OF 46 USPATFULL on STN
AN 2002:343548 USPATFULL
TI Borellia burgdorferi epitope peptides
IN Qiu, Bo, East Brunswick, NJ, UNITED STATES
Zhang, Guobao, Piscataway, NJ, UNITED STATES

Stein, Stanely, East Brunswick, NJ, UNITED STATES
Sigal, Leonard , Plainfield, NJ, UNITED STATES
Brunner, Michael, Columbus, NJ, UNITED STATES
Katz, Michael, Freehold, NJ, UNITED STATES
PI US 2002197271 A1 20021226
AI US 2001-982259 A1 20011017 (9)
PRAI US 2000-242819P 20001024 (60)
DT Utility
FS APPLICATION
LREP LYON & LYON LLP, 633 WEST FIFTH STREET, SUITE 4700, LOS ANGELES, CA, 90071
CLMN Number of Claims: 45
ECL Exemplary Claim: 1
DRWN 4 Drawing Page(s)
LN.CNT 902
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Immunologically invisible carrier molecules connect a plurality of copies of an immunologically active molecule in an immunologic assay.

L8 ANSWER 9 OF 46 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
AN 2001:484317 BIOSIS
DN PREV200100484317
TI Use of serum immune complexes in a new test that accurately confirms early Lyme disease and active infection with ***Borrelia*** burgdorferi.
AU Brunner, Michael; ***Sigal, Leonard H. (1)*** .
CS (1) Division of Rheumatology, 1 Robert Wood Johnson Pl., MEB484, New Brunswick, NJ, 08903-0019: sigallh@umdnj.edu USA
SO Journal of Clinical Microbiology, (September, 2001) Vol. 39, No. 9, pp. 3213-3221. print.
ISSN: 0095-1137.
DT Article
LA English
SL English
AB The present recommendation for serologic confirmation of Lyme disease (LD) calls for immunoblotting in support of positive or equivocal ELISA. ***Borrelia*** burgdorferi releases large quantities of proteins, suggesting that specific antibodies in serum might be trapped in immune complexes (ICs), rendering the antibodies undetectable by standard assays using unmodified serum. Production of ICs requires ongoing antigen production, so persistence of IC might be a marker of ongoing or persisting infection. We developed an immunoglobulin M (IgM) capture assay (EMIBA) measuring IC-derived IgM antibodies and tested it using three well-defined LD populations (from an academic LD referral center, a well-described Centers for Disease Control and Prevention (CDC) serum bank, and a group of erythema migrans patients from whose skin lesions B. burgdorferi was grown) and controls (non-Lyme arthritis inflammatory joint disease, syphilis, multiple sclerosis, and nondisease subjects from a region where LD is endemic, perhaps the most relevant comparison group of

all). Previous studies demonstrated that specific antigen-antibody complexes in the sera of patients with LD could be precipitated by polyethylene glycol and could then be disrupted with maintenance of the immunoreactivity of the released antibodies, that specific anti-B. burgdorferi IgM was concentrated in ICs, and that occasionally IgM to specific B. burgdorferi antigens was found in the IC but not in unprocessed serum. EMIBA compared favorably with commercial and CDC flagellin-enhanced enzyme-linked immunosorbent assays and other assays in confirming the diagnosis of LD. EMIBA confirmed early B. burgdorferi infection more accurately than the comparator assays. In addition, EMIBA more accurately differentiated seropositivity in patients with active ongoing infection from seroreactivity persisting long after clinically successful antibiotic therapy; i.e., EMIBA identified seroreactivity indicating a clinical circumstance requiring antibiotic therapy. Thus, EMIBA is a promising new assay for accurate serologic confirmation of early and/or active LD.

L8 ANSWER 10 OF 46 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
DUPLICATE 3
AN 2002:197963 BIOSIS
DN PREV200200197963
TI H9724, a monoclonal antibody to ***Borrelia*** burgdorferi's flagellin, binds to heat shock protein 60 (HSP60) within live neuroblastoma cells: A potential role for HSP60 in peptide hormone signaling and in an autoimmune pathogenesis of the neuropathy of Lyme disease.
AU ***Sigal, Leonard H. (1)*** ; Williams, Stephanie; Soltys, Bohdan; Gupta, Radhey
CS (1) 1 Robert Wood Johnson Place, MEB 484, New Brunswick, NJ, 08903-0019: sigallh@umdnj.edu USA
SO Cellular and Molecular Neurobiology, (October, 2001) Vol. 21, No. 5, pp. 477-495. http://www.kluweronline.com/issn/0272-4340. print. ISSN: 0272-4340.
DT Article
LA English
AB Although ***Borrelia*** burgdorferi, the causative agent of Lyme disease, is found at the site of many disease manifestations, local infection may not explain all its features. B. burgdorferi's flagellin cross-reacts with a component of human peripheral nerve axon, previously identified as heat shock protein 60 (HSP60). The cross-reacting epitopes are bound by a monoclonal antibody to B. burgdorferi's flagellin, H9724. Addition of H9724 to neuroblastoma cell cultures blocks in vitro spontaneous and peptide growth-factor-stimulated neuritogenesis. Withdrawal of H9724 allows return to normal growth and differentiation. Using electron microscopy, immunoprecipitation and immunoblotting, and FACS analysis we sought to identify the site of binding of H9724, with the starting hypotheses that the binding was intracellular and not identical to the binding site of II-13, a monoclonal anti-HSP60 antibody. The

current studies show that H9724 binds to an intracellular target in cultured cells with negligible, if any, surface binding. We previously showed that sera from patients with neurological manifestations of Lyme disease bound to human axons in a pattern identical to H9724's binding; these same sera also bind to an intracellular neuroblastoma cell target. II-13 binds to a different HSP60 epitope than H9724; II-13 does not modify cellular function in vitro. As predicted, II-13 bound to mitochondria, in a pattern of cellular binding very different from H9724, which bound in a scattered cytoplasmic, nonorganelle-related pattern. H9724's effect is the first evidence that HSP60 may play a role in peptide-hormone-receptor function and demonstrates the modulatory potential of a monoclonal antibody on living cells.

L8 ANSWER 11 OF 46 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
DUPLICATE 4
AN 2000:421543 BIOSIS
DN PREV200000421543
TI Immune complexes from serum of patients with Lyme disease contain ***Borrelia*** burgdorferi antigen and antigen-specific antibodies: Potential use for improved testing.
AU Brunner, Michael; ***Sigal, Leonard H. (1)***
CS (1) 1 Robert Wood Johnson Place, MEB 484, New Brunswick, NJ, 08903-0019 USA
SO Journal of Infectious Diseases, (August, 2000) Vol. 182, No. 2, pp. 534-539. print.
ISSN: 0022-1899.
DT Article
LA English
SL English
AB We report sequestration of specific IgM anti- ***Borrelia*** burgdorferi (Bb) and Bb antigens within immune complexes (ICs) isolated from serum of patients with Lyme disease (LD). The relative enrichment in specific IgM measured by ELISA was apparent, even after correcting for differences in total IgM concentration in serum versus ICs. Immunoblot demonstrated that ICs contained antibodies against specific Bb proteins, whereas reactivity was absent or significantly lessened in unprocessed serum. This is the first study to show ICs containing Bb antigen identified by immunoblot with anti-Bb monoclonal antibody. ICs may be a useful source of antigen and antibody for development of more-accurate testing for LD.

L8 ANSWER 12 OF 46 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
DUPLICATE 5
AN 2000:438078 BIOSIS
DN PREV200000438078
TI Detection of multiple reactive protein species by immunoblotting after recombinant outer surface protein A Lyme disease vaccination.
AU Molloy, Philip J.; Berardi, Victor P. (1); Persing, David H.; ***Sigal,***

*** Leonard H.***
CS (1) IMUGEN, 220 Norwood Park South, Norwood, MA, 02062 USA
SO Clinical Infectious Diseases, (July, 2000) Vol. 31, No. 1, pp. 42-47.
print.
ISSN: 1058-4838.
DT Article
LA English
SL English
AB Laboratory confirmation of the diagnosis of Lyme disease is based on the detection of an immune response to ***Borrelia*** burgdorferi. The serodiagnosis of B. burgdorferi infection is complex and may be further confounded by the immune response to the recombinant outer surface protein A (OspA) Lyme disease vaccine. To describe how the serological response to the recombinant OspA Lyme disease vaccine affects testing for antibody to B. burgdorferi, 240 specimens from 80 study subjects were obtained at defined intervals after recombinant OspA Lyme disease vaccination. Samples were tested by indirect enzyme-linked immunosorbent assay (ELISA), antibody capture enzyme immunoassay (EIA), and Western blotting (WB). After recombinant OspA Lyme disease vaccination, ELISA for 98% of the study subjects revealed reactivity. WB with use of OspA-containing B. burgdorferi strains as sources of antigens demonstrated multiple bands. Results of testing with a US Food and Drug Administration-approved WB kit showed homogeneous reactivity in the molecular weight region >30 kDa. Testing with OspA-free strains completely eliminated all vaccine-associated reactivity by both antibody capture EIA and WB.

L8 ANSWER 13 OF 46 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
AN 1999:422042 BIOSIS
DN PREV199900422042
TI Management of lyme arthritis.
AU ***Sigal, Leonard H. (1)***
CS (1) 1 Robert Wood Johnson Place, MEB 484, New Brunswick, NJ, 08903-0019 USA
SO Comprehensive Therapy, (April, 1999) Vol. 25, No. 4, pp. 228-238.
ISSN: 0098-8243.
DT General Review
LA English

L8 ANSWER 14 OF 46 CAPLUS COPYRIGHT 2003 ACS on STN
AN 1998:748441 CAPLUS
DN 130:108894
TI Lyme arthritis synovial .gamma..delta. T cells respond to ***Borrelia*** burgdorferi lipoproteins and lipidated hexapeptides
AU Vincent, Michael S.; Roessneer, Karen; Sellati, Timothy; Huston, Christopher D.; ***Sigal, Leonard H.*** ; Behar, Samuel M.; Radolf, Justin D.; Budd, Ralph C.
CS Divisions of Immunobiology and Rheumatology, Department of Medicine, College of Medicine, University of Vermont, Burlington, VT, 05405, USA

SO Journal of Immunology (1998), 161(10), 5762-5771
CODEN: JOIMA3; ISSN: 0022-1767
PB American Association of Immunologists
DT Journal
LA English
AB Lyme arthritis synovial fluid contains a large proportion of .gamma..delta. T cells that proliferates upon stimulation with the causative spirochete, ***Borrelia*** burgdorferi. A panel of ***Borrelia*** -reactive .gamma..delta. T cell clones was derived from synovial fluid of two patients with Lyme arthritis. Each of six .gamma..delta. clones from one patient used the V.delta.1 TCR segment but had otherwise unique CDR3 sequences and diverse V.gamma. segment usage. Stimulation of the V.delta.1 clones was optimal in the presence of ***Borrelia*** , dendritic cells and exogenous IL-2, which was reflected by proliferation, TCR down-modulation, as well as induction of CD25 and Fas ligand expression. Stimulation by B. burgdorferi-pulsed dendritic cells withstood chem. fixation and was not restricted to class I or class II MHC, CD1a, CD1b, or CD1c. In contrast, anti-.gamma..delta. antibody potently inhibited proliferation. Extn. of B. burgdorferi lipoproteins with Triton X-114 enriched for the stimulatory component. This was confirmed using lipidated vs. nonlipidated hexapeptides of ***Borrelia*** outer surface proteins. These observations suggest that synovial V.delta.1 T cells may mediate an innate immune response to common lipoprotein products of spirochetes.
RE.CNT 65 THERE ARE 65 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 15 OF 46 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
DUPLICATE 6
AN 1998:166376 BIOSIS
DN PREV199800166376
TI Biased T-cell antigen receptor repertoire in Lyme arthritis.
AU Roessner, Karen; Trivedi, Harsh; Gaur, Lakshmi; Howard, Diantha; Aversa, John; Cooper, Sheldon M.; ***Sigal, Leonard H.*** ; Budd, Ralph C. (1)
CS (1) Div. Immunobiol., Given Med. Build., C-303, Univ. Vermont Coll. Med., Burlington, VT 05405-0068 USA
SO Infection and Immunity, (March, 1998) Vol. 66, No. 3, pp. 1092-1099.
ISSN: 0019-9567.
DT Article
LA English
AB A common concern with many autoimmune diseases of unknown etiology is the extent to which tissue T-lymphocyte infiltrates, versus a nonspecific infiltrate, reflect a response to the causative agent. Lyme arthritis can histologically resemble rheumatoid synovitis, particularly the prominent infiltration by T lymphocytes. This has raised speculation about whether Lyme synovitis represents an ongoing response to the causative spirochete, ***Borrelia*** burgdorferi, or rather a self-perpetuating autoimmune reaction. In an effort to answer this question, the present study examined

the repertoire of infiltrating T cells in synovial fluid from nine Lyme arthritis patients, before and after stimulation with B. burgdorferi quantitative PCR technique, a comparison of the T-cell antigen receptor (TCR) beta-chain variable (VD) repertoires of the peripheral blood and synovial fluid showed a statistically significant increase in expression of Vbeta2 and Vbeta6 in the latter. This is remarkably similar to our previous findings in studies of rheumatoid arthritis and to other reports on psoriatic skin lesions. However, stimulation of synovial fluid T cells with B. burgdorferi provoked active proliferation but not a statistically significant increase in expression of any TCR VP, including Vbeta2 and Vbeta6. Collectively, the findings suggest that the skewing of the TCR repertoire of fresh synovial fluid in Lyme arthritis may represent more a synovium-tropic or nonspecific inflammatory response, similar to that occurring in rheumatoid arthritis or psoriasis, rather than a specific ***Borrelia*** reaction.

L8 ANSWER 16 OF 46 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN DUPLICATE 7
AN 1998:229543 BIOSIS
DN PREV199800229543
TI Immunoglobulin M capture assay for serologic confirmation of early Lyme disease: Analysis of immune complexes with biotinylated ***Borrelia*** burgdorferi sonicate enhanced with flagellin peptide epitope.
AU Brunner, Michael; Stein, Stanley; Mitchell, Paul D.; ***Sigal, Leonard*** *** H. (1)***
CS (1) 1 Robert Wood Johnson Place MEB 484, New Brunswick, NJ 08903-0019 USA
SO Journal of Clinical Microbiology, (April, 1998) Vol. 36, No. 4, pp. 1074-1080.
ISSN: 0095-1137.
DT Article
LA English
AB We previously reported on the efficacy of the enzyme-linked immunoglobulin M capture immune complex (IC) biotinylated antigen assay (EMIBA) for the seroconfirmation of early Lyme disease and active infection with ***Borrelia*** burgdorferi. In earlier work we identified non-cross-reacting epitopes of a number of B. burgdorferi proteins, including flagellin. We now report on an improvement in the performance of EMIBA with the addition of a biotinylated form of a synthetic non-cross-reacting immunodominant flagellin peptide to the biotinylated B. burgdorferi B31 sonicate antigen source with the avidin-biotinylated peroxidase complex detection system used in our recently developed indirect IgM-capture immune complex-based assay (EMIBA). As in our previous studies, the enzyme-linked immunosorbent assay (ELISA) reactivities of antibodies liberated from circulating ICs (by EMIBA) were compared with those of antibodies in unprocessed serum (antibodies found free in the serum, thus as an IgM-capture ELISA, but not EMIBA, because the antibodies were not liberated from ICs), the sample usually used in standard ELISAs and Western blot assays. The addition of the flagellin

epitope enhanced the ELISA signal obtained with untreated sera from many Lyme disease patients but not from healthy controls. In tests with both free antibodies and ICs, with or without the addition of the flagellin epitope to the sonicate, we found the most advantageous combination was IC as the source of antibodies and sonicate plus the flagellin epitope as the antigen. In a blinded study of sera obtained from patients with early and later-phase Lyme disease, EMIBA with the enhanced antigenic preparation compared favorably with other serologic assays, especially for the confirmation of early disease.

L8 ANSWER 17 OF 46 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
AN 1998:327311 BIOSIS
DN PREV199800327311
TI Musculoskeletal manifestations of lyme arthritis.
AU ***Sigal, Leonard H. (1)***
CS (1) 1 Robert Wood Johnson Place, MEB 484, New Brunswick, NJ 08903-0019
SO Rheumatic Disease Clinics of North America, (May, 1998) Vol. 24, No. 2, pp. 323-351.
ISSN: 0889-857X.
DT General Review
LA English

L8 ANSWER 18 OF 46 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
DUPLICATE 8
AN 1998:364305 BIOSIS
DN PREV199800364305
TI A vaccine consisting of recombinant ***Borrelia*** burgdorferi outer-surface protein A to prevent Lyme disease.
AU ***Sigal, Leonard H. (1)*** ; Zahradnik, John M.; Lavin, Philip; Patella, Sondra J.; Bryant, Gary; Haselby, Ray; Hilton, Eileen; Kunkel, Mark; Adler-Klein, Debra; Doherty, Terrence; Evans, Janine; Malawista, Steven E.; Vaccin, Recombinant Outer-Surface Protein A Lyme Disease
CS (1) 1 Robert Wood Johnston Pl., MEB 484, New Brunswick, NJ 08903-0019 USA
SO New England Journal of Medicine, (July 23, 1998) Vol. 339, No. 4, pp. 216-222.
ISSN: 0028-4793.
DT Article
LA English
AB Background. Lyme disease is a multisystem inflammatory disease caused by infection with the tick-borne spirochete ***Borrelia*** burgdorferi and is the most common vector-borne infection in the United States. We assessed the efficacy of a recombinant vaccine consisting of outer-surface protein A (OspA) without adjuvant in subjects at risk for Lyme disease. Methods. For this double-blind trial, 10,305 subjects 18 years of age or older were recruited at 14 sites in areas of the United States where Lyme disease was endemic; the subjects were randomly assigned to receive either placebo (5149 subjects) or 30 mug of OspA vaccine (5156 subjects). The first two injections were administered 1 month apart, and 7515 subjects

also received a booster dose at 12 months. The subjects were observed for two seasons during which the risk of transmission of Lyme disease was high. The primary end point was the number of new clinically and serologically confirmed cases of Lyme disease. Results. The efficacy of the vaccine was 68 percent in the first year of the study in the entire population and 92 percent in the second year among the 3745 subjects who received the third injection. The vaccine was well tolerated. There was a higher incidence of mild, self-limited local and systemic reactions in the vaccine group, but only during the seven days after vaccination. There was no significant increase in the frequency of arthritis or neurologic events in vaccine recipients. Conclusions. In this study, OspA vaccine was safe and effective in the prevention of Lyme disease.

L8 ANSWER 19 OF 46 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
AN 1998:167489 BIOSIS
DN PREV199800167489
TI Pitfalls in the diagnosis and management of Lyme disease.
AU ***Sigal, Leonard H. (1)***
CS (1) 1 Robert Wood Johnson Place, MEB 484, New Brunswick, NJ 08903-0019 USA
SO Arthritis & Rheumatism, (Feb., 1998) Vol. 41, No. 2, pp. 195-204.
ISSN: 0004-3591.
DT General Review
LA English

L8 ANSWER 20 OF 46 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
AN 1998:519641 BIOSIS
DN PREV199800519641
TI Lyme ***borreliosis*** (Lyme disease): Interactions of ***Borrelia*** burgdorferi sensu lato with human (and other mammalian) hosts.
AU ***Sigal, Leonard H. (1)***
CS (1) Lyme Disease Center, UMDNJ-Robert Wood Johnson Medical School, 1 Robert Wood Johnson Place MEB 484, New Brunswick, NJ 08903-0019 USA
SO Bulletin de l'Institut Pasteur, (July-Sept., 1998) Vol. 96, No. 3, pp. 189-206.
ISSN: 0020-2452.
DT General Review
LA English

L8 ANSWER 21 OF 46 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
AN 1997:369066 BIOSIS
DN PREV199799668269
TI Lyme disease: A review of aspects of its immunology and immunopathogenesis.
AU ***Sigal, Leonard H.***
CS Div. Rheumatol. and Connective Tissue Res., UMDNJ-Robert Wood Johnson Med. Sch., New Brunswick, NJ 08903 USA
SO Paul, W. E. [Editor]. Annual Review of Immunology, (1997) Vol. 15, pp.

63-92. Annual Review of Immunology.
Publisher: Annual Reviews Inc. P.O. Box 10139, 4139 El Camino Way, Palo Alto, California 94306, USA.
ISSN: 0732-0582. ISBN: 0-8243-3015-3.
DT Book; General Review
LA English

L8 ANSWER 22 OF 46 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
DUPLICATE 9
AN 1997:250580 BIOSIS
DN PREV199799549783
TI A monoclonal antibody to ***Borrelia*** burgdorferi flagellin modifies neuroblastoma cell neuritogenesis in vitro: A possible role for autoimmunity in the neuropathy of Lyme disease.
AU ***Sigal, Leonard H. (1)*** ; Williams, Stephanie
CS (1) 1 Robert Wood Johnson Place MEB 484, New Brunswick, NJ 08903-0019 USA
SO Infection and Immunity, (1997) Vol. 65, No. 5, pp. 1722-1728.
ISSN: 0019-9567.
DT Article
LA English
AB Although ***Borrelia*** burgdorferi is found at the site of many manifestations of Lyme disease, local infection may not explain all features of the disease. Previous work has demonstrated that the organism's flagellin cross-reacts with a component of human peripheral nerve axon, heat shock protein 60. The cross-reacting epitope is identified by a single anti-B. burgdorferi flagellin monoclonal antibody, H9724. We now report that the spontaneous and peptide growth factor-stimulated in vitro neuritogenesis of SK-N-SH neuroblastoma cells and other neural tumor cell lines is suppressed by H9724. In contrast, changes induced by exposure of these cells to optimal and suboptimal concentrations of cyclic AMP, phorbol ester, or retinoic acid are not affected by H9724. H9724 does not decrease cell viability or the ability of the cells to anchor to the culture plate or extracellular matrix and does not block nerve growth factor binding to the cells. These findings are compatible with the premise that antiaxonal antibodies formed during the immune response to B. burgdorferi flagellin might modify axonal function in vivo and play a role in the pathogenesis of neurologic features of Lyme disease. A humoral immune response predicated on molecular mimicry could explain persistent or ongoing neurologic dysfunction occurring after elimination of the organism by appropriate antibiotic therapy.

L8 ANSWER 23 OF 46 CAPLUS COPYRIGHT 2003 ACS on STN
AN 1998:102169 CAPLUS
DN 128:178700
TI Lyme disease
AU ***Sigal, Leonard H.***
CS Departments of Medicine and Molecular Genetics and Microbiology, Lyme

Disease Center, UMDNJ-Robert Wood Johnson Medical School, New Brunswick, NJ, USA
SO Principles of Medical Biology (1997), Volume 9A, 215-231. Editor(s): Bittar, E. Edward; Bittar, Neville. Publisher: JAI Press, Greenwich, Conn. CODEN: 63ABAW
DT Conference; General Review
LA English
AB A review, with 76 refs. Topics discussed include: epidemiol., clin. description, means of transmission of ***Borrelia*** burgdorferi other than tick bite, diagnosis and antibiotic treatment, controversies in treatment of Lyme disease, persisting symptoms after treatment, response of later features of Lyme disease, the question of how to deal with the asymptomatic seropos. individual, and how to remove a tick.
RE.CNT 76 THERE ARE 76 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 24 OF 46 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
AN 1998:157597 BIOSIS
DN PREV199800157597
TI Enzyme-linked IgM capture immune complex biotinylated-antigen assay (EMIBA) detection of anti-B. burgdorferi (Bb) antibodies: A new immunoassay for early and active Lyme disease (LD.
AU Brunner, Michael; Stein, Stanley; ***Sigal, Leonard***
CS UMDNJ-Robert Wood Johnson Med. Sch., New Brunswick, NJ 08903 USA
SO Arthritis & Rheumatism, (Sept., 1997) Vol. 40, No. 9 SUPPL., pp. S142. Meeting Info.: 61st National Scientific Meeting of the American College of Rheumatology and the 32nd National Scientific Meeting of the Association of Rheumatology Health Professionals Washington, DC, USA November 8-12, 1997 Association of Rheumatology Health Professionals . ISSN: 0004-3591.
DT Conference
LA English

L8 ANSWER 25 OF 46 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
AN 1997:275008 BIOSIS
DN PREV199799574211
TI Immunologic mechanisms in Lyme neuroborreliosis: The potential role of autoimmunity and molecular mimicry.
AU ***Sigal, Leonard H.***
CS UMDNJ-Robert Wood Johnson Med. Sch., 1 Robert Wood Johnson Pl., MEB 484, New Brunswick, NJ 08903-0019 USA
SO Seminars in Neurology, (1997) Vol. 17, No. 1, pp. 63-68. ISSN: 0271-8235.
DT General Review
LA English

L8 ANSWER 26 OF 46 CAPLUS COPYRIGHT 2003 ACS on STN
AN 1997:244429 CAPLUS

DN 126:304637
TI Lyme disease: a review of aspects of its immunology and immunopathogenesis
AU ***Sigal, Leonard H.***
CS Div. Rheumatology and Connective Tissue Research, UMDNJ-Robert Wood Johnson Med. Sch., New Brunswick, NJ, 08903, USA
SO Annual Review of Immunology (1997), 15, 63-92
CODEN: ARIMDU; ISSN: 0732-0582
PB Annual Reviews
DT Journal; General Review
LA English
AB A review with 289 refs. Lyme disease, caused by ***Borrelia*** burgdorferi, causes a multisystem inflammatory ailment, although the precise means of tissue damage are not well understood. It is clear that the organism is present at the site of inflammation in many organs and that many of the features of the illness are relieved by antibiotic therapy. A complex interaction between spirochete and immune systems of a no. of mammalian hosts, in human disease and animal models, has been described. It is clear that T cells and macrophages are intimately assocd. with the pathogenesis of arthritis and that immune mechanisms are involved in other aspects of disease. Inflammation directed at persistence of ***Borrelial*** antigens is a plausible explanation for persisting arthritis. Autoimmunity based on mol. mimicry may play a role in the pathogenesis of Lyme disease. Humoral immunity plays a protective role, prompting interest in vaccine development. Significant variation in certain of the outer surface proteins suggests that multiple proteins, peptides, or chimeric vaccines may be needed to provide a sufficiently broad humoral protective response. Topics discussed include cytokines, animal models, oxygen radicals, and nitric oxide.

L8 ANSWER 27 OF 46 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN DUPLICATE 10
AN 1997:60876 BIOSIS
DN PREV199799360079
TI Apoptosis of Fas-high CD4+ synovial T cells by ***Borrelia*** -reactive Fas-ligand-high gamma-delta T cells in lyme arthritis.
AU Vincent, Michael S.; Roessner, Karen; Lynch, David; Wilson, David; Cooper, Sheldon M.; Tschopp, Jurg; ***Sigal, Leonard H.*** ; Budd, Ralph C. (1)
CS (1) Div. Immunol., Univ. Vermont Coll. Med., Given Medical Build., Room C-303, Burlington, VT 05405-0068 USA
SO Journal of Experimental Medicine, (1996) Vol. 184, No. 6, pp. 2109-2117. ISSN: 0022-1007.
DT Article
LA English
AB The function of the minor subset of T lymphocytes bearing the gamma-delta cell antigen receptor is uncertain. Although some gamma-delta T cells react to microbial products, responsiveness has only rarely been demonstrated toward a bacterial antigen from a naturally occurring human infection. Synovial fluid lymphocytes from patients with Lyme arthritis

contain a large proportion of gamma-delta cells that proliferate in response to the causative spirochete, ***Borrelia*** burgdorferi. Furthermore, synovial gamma-delta T cell clones express elevated and sustained levels of the ligand for Fas (APO-1, CD95) compared to c-alpha-beta T cells, and induce apoptosis of Fas high CD4+ synovial lymphocytes. The findings suggest that y-gamma-delta T cells contribute to defense in human infections, as well as manifest an immunoregulatory function at inflammatory sites by a Fas-dependent process.

L8 ANSWER 28 OF 46 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
DUPLICATE 11
AN 1996:317123 BIOSIS
DN PREV199699039479
TI Presentation of peptide antigens as albumin conjugates for use in detection of serum antibodies by enzyme-linked immunosorbent assay.
AU Yu, Zhiguang; Carter, John Mark; Huang, Shaei-Yun; Lackland, Henry; ***Sigal, Leonard H.*** ; Stein, Stanley (1)
CS (1) Cent. Adv. Biotechnol. and Med., 679 Hoes Lane, Piscataway, NJ 08854 USA
SO Bioconjugate Chemistry, (1996) Vol. 7, No. 3, pp. 338-342.
ISSN: 1043-1802.
DT Article
LA English
AB The use of linear peptides as antigens for detection of serum antibodies has been studied using a sequence of the ***Borrelia*** burgdorferi protein, flagellin, and Lyme disease sera as a model. It was found that a novel presentation of the peptide as a hapten on the carrier protein, bovine serum albumin, in the enzyme-linked immunosorbent assay format can be successfully applied to distinguish between Lyme disease and control sera.

L8 ANSWER 29 OF 46 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
AN 1996:342100 BIOSIS
DN PREV199699064456
TI Improved serodiagnostic testing for Lyme disease: Results of a multicenter serologic evaluation.
AU Craven, Robert B. (1); Quan, Thomas J. (1); Bailey, Raymond E. (1); Dattwyler, Raymond; Ryan, Raymond W.; ***Sigal, Leonard H.*** ; Steere, Allen C.; Sullivan, Bradley; Johnson, Barbara J. B. (1); Dennis, David T. (1); Gubler, Duane J. (1)
CS (1) Cent. Dis. Control Prevention, Fort Collins, CO USA
SO Emerging Infectious Diseases, (1996) Vol. 2, No. 2, pp. 136-140.
ISSN: 1080-6040.
DT Article
LA English

L8 ANSWER 30 OF 46 CAPLUS COPYRIGHT 2003 ACS on STN
AN 1996:609238 CAPLUS

DN 125:298896
TI Multi-well ELISA based on independent peptide antigens for antibody capture. Application to Lyme disease serodiagnosis
AU Yu, Zhiguang; Carter, John Mark; ***Sigal, Leonard H.*** ; Stein, Stanley
CS Center for Advanced Biotechnology and Medicine, 679 Hoes Lane, Piscataway, NJ, USA
SO Journal of Immunological Methods (1996), 198(1), 25-33
CODEN: JIMMBG; ISSN: 0022-1759
PB Elsevier
DT Journal
LA English
AB Novel procedures for the use of peptides as antibody-capture reagents in the ELISA format have been investigated. Epitope sequences from known immunodominant antigens of ***Borrelia*** burgdorferi were selected by screening peptide libraries with sera from patients with Lyme disease. Several epitope peptides were synthesized and immobilized, sep., on the ELISA plate as haptens on bovine serum albumin. Based on a comparative anal. of serum samples, it appears that peptide antigens can be used as effectively as a whole cell lysate to discriminate between Lyme disease and non-Lyme disease sera, thus avoiding dependence on bacterial sonicates which vary from passage to passage. Further improvements in epitope design for enhancement of accuracy in serodiagnosis are discussed.

L8 ANSWER 31 OF 46 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
AN 1995:258996 BIOSIS
DN PREV199598273296
TI Summary of the sixth international conference on lyme ***borreliosis*** : (Bologna, Italy, June 19-22, 1994.
AU ***Sigal, Leonard H.***
CS 1 Robert Wood Johnson Place MEB 484, New Brunswick, NJ 08903-0019 USA
SO Arthritis & Rheumatism, (1995) Vol. 38, No. 4, pp. 565-569.
ISSN: 0004-3591.
DT Conference
LA English

L8 ANSWER 32 OF 46 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
AN 1995:135522 BIOSIS
DN PREV199598149822
TI Management of Lyme disease refractory to antibiotic therapy.
AU ***Sigal, Leonard H.***
CS 1 Robert Wood Johnson Place, New Brunswick, NJ 08903-0019 USA
SO Rheumatic Disease Clinics of North America, (1995) Vol. 21, No. 1, pp. 217-230.
ISSN: 0889-857X.
DT General Review
LA English

L8 ANSWER 33 OF 46 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
AN 1995:314927 BIOSIS
DN PREV199598329227
TI False positive seroreactivity to ***Borrelia*** burgdorferi in systemic lupus erythematosus: The value of immunoblot analysis.
AU Weiss, Nancy L.; Sadock, Victoria A.; ***Sigal, Leonard H.*** ; Phillips, Mark; Merryman, Parvin F.; Abramson, Steven B. (1)
CS (1) Hosp. Joint Diseases, 301 East 17th Street, New York, NY 10003 USA
SO Lupus, (1995) Vol. 4, No. 2, pp. 131-137.
ISSN: 0961-2033.
DT Article
LA English
AB The object of this study was to determine the incidence of seropositivity to B. burgdorferi by the commonly available enzyme-linked immunosorbent assay (ELISA) in patients with SLE and other rheumatic diseases and to evaluate immunoblot analysis as a tool to differentiate true from false positive ELISA. Sera were obtained from patients with SLE (n = 35), rheumatoid arthritis (n = 26), seronegative arthritis (n = 28) and Lyme disease (n = 18). Reactivity to B. burgdorferi antigens was analysed by two available diagnostic techniques: ELISA and immunoblot. Correlations were made between seroreactivity to B. burgdorferi and standard serological tests of autoimmunity: antibodies to nuclear antigens, dsDNA, cardiolipin, SSA and SSB. Seroreactivity to B. burgdorferi antigens by the ELISA system was detected in 40% of patients with SLE, 8% of patients with rheumatoid arthritis and 4% with seronegative arthritis. Among patients seropositive by ELISA, immunoblots were negative in all cases. However, eight of 14 patients with rheumatoid arthritis (57%) showed cross-reactivity to multiple ***borrelial*** antigens. No significant correlations were found between Lyme seropositivity by ELISA and other autoantibodies except IgM rheumatoid factor (r = 0.61, P lt 0.01) in patients with rheumatoid arthritis. In conclusion: a positive ELISA for Lyme disease was found in up to 40% of patients with established SLE and also in other rheumatic diseases. However, specific serum antibodies to ***Borrelia*** were not confirmed by the more specific immunoblot technique. We conclude that immunoblot analysis can help differentiate a false from true positive ELISA for Lyme disease. These findings should caution the clinician with regard to the limitations of current diagnostic testing for Lyme disease, particularly in patients with connective tissue disease.

L8 ANSWER 34 OF 46 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
DUPLICATE 12
AN 1995:300118 BIOSIS
DN PREV199598314418
TI Early Disseminated Lyme Disease: Cardiac Manifestations.
AU ***Sigal, Leonard H.***
CS 1 Robert Wood Johnson Place MEB 484, New Brunswick, NJ 08903-0019 USA
SO American Journal of Medicine, (1995) Vol. 98, No. 4 PART A, pp.

4A-25S-4A-28S.
ISSN: 0002-9343.
DT General Review
LA English
AB The cardiac features of Lyme disease usually occur within weeks to months of the infecting tick bite; the result may be disruption of the conduction system, leading to heart block and muscle dysfunction, causing a mild myopericarditis. Lyme carditis is usually mild, although permanent heart block and a few fatalities claimed to be due to Lyme carditis have been reported, the latter usually with poor documentation. In general, Lyme carditis is treatable and curable with antibiotic regimens in current use. Recent reports have suggested that Lyme disease may be a cause of chronic congestive cardiomyopathy. Lyme carditis should be considered in the proper clinical setting with appropriate use of diagnostic tests, recalling that patients with carditis early in Lyme disease may be seronegative and that all patients who are seropositive do not necessarily have Lyme disease.

L8 ANSWER 35 OF 46 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
AN 1997:158667 BIOSIS
DN PREV199799457870
TI Pseudo-Lyme disease.
AU ***Sigal, Leonard H.***
CS Dep. Med., Univ. Med. and Dent. N.J., Robert Wood Johnson Med. Sch., New Brunswick, NJ USA
SO Bulletin on the Rheumatic Diseases, (1995) Vol. 44, No. 8, pp. 1-3.
ISSN: 0007-5248.
DT Journal; Article
LA English

L8 ANSWER 36 OF 46 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
AN 1994:324478 BIOSIS
DN PREV199497337478
TI Severe complications of Lyme disease.
AU ***Sigal, Leonard H.***
CS Lyme Disease Cent., Univ. Med. Dentistry New Jersey, Robert Wood Johnson Med. Sch., New Brunswick, NJ USA
SO Mandell, B. F. [Editor]. (1994) pp. 401-423. Acute rheumatic and immunological diseases: Management of the critically ill patient.
Publisher: Marcel Dekker, Inc. 270 Madison Avenue, New York, New York 10016, USA.
ISBN: 0-8247-9125-8.
DT Book
LA English

L8 ANSWER 37 OF 46 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
AN 1994:272816 BIOSIS
DN PREV199497285816

TI Persisting complaints attributed to chronic Lyme disease: Possible mechanisms and implications for management.
AU ***Sigal, Leonard H.***
CS 1 Robert Wood Johnson Place, MEB 484, New Brunswick, NJ 08903-0019 USA
SO American Journal of Medicine, (1994) Vol. 96, No. 4, pp. 365-374. ISSN: 0002-9343.
DT General Review
LA English
AB A better understanding of the natural history of Lyme disease and of possible causes for persisting symptoms other than active infection is needed to optimize management of patients with persistent symptoms. Review of patients seen at a Lyme disease referral center and of the immunologic and clinical literature on Lyme disease suggests most symptoms that persist after therapy can be explained by one or more of seven proposed pathogenetic mechanisms, only one of which includes active ongoing infection. Individualization of care and reanalysis of patients problems are crucial if misdiagnosis and over-treatment of Lyme disease are to be avoided.

L8 ANSWER 38 OF 46 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
AN 1994:128641 BIOSIS
DN PREV199497141641
TI Summary of the fifth international congress on lyme ***borreliosis*** (Arlington, Virginia, USA May 30-June 2, 1992.
AU ***Sigal, Leonard H.***
CS 1 Robert Wood Johnson Place, MEB 484, New Brunswick, NJ 08903-0019 USA
SO Arthritis & Rheumatism, (1994) Vol. 37, No. 1, pp. 10-14. ISSN: 0004-3591.
DT Conference
LA English

L8 ANSWER 39 OF 46 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN DUPLICATE 13
AN 1993:388636 BIOSIS
DN PREV199396063936
TI Cross-reactivity between ***Borrelia*** burgdorferi flagellin and a human axonal 64000 molecular weight protein.
AU ***Sigal, Leonard H.***
CS UMDNJ-Robert Wood Johnson Med. Sch., 1 Robert Wood Johnson Pl. MEB 484, New Brunswick, NJ 08903-0019 USA
SO Journal of Infectious Diseases, (1993) Vol. 167, No. 6, pp. 1372-1378. ISSN: 0022-1899.
DT Article
LA English
AB The serum of patients with Lyme neurologic disease contain antibodies that bind to human axonal antigens that cross-react with ***Borrelia*** burgdorferi. The sera also bind to SK-N-SH neuroblastoma cells, especially the neuritic processes of these cells. H9724, a murine IgG monoclonal

antibody of B. burgdorferi flagellin, binds to an SK-N-SH cell protein of apprx 64,000 apparent molecular weight (M-r). H9724 immunoprecipitates a protein of the same M-r (p64) from the cells and from a delipidated preparation of human peripheral nerve. The Lyme disease patient sera that bind to human axons and SK-N-SH cells also bind to the immunoprecipitated p64. Immunologic cross-reactivity between ***borrelial*** and human axonal proteins may be involved in the immunopathogenesis of Lyme neurologic disease.

L8 ANSWER 40 OF 46 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
AN 1993:388443 BIOSIS
DN PREV199396063743
TI The polymerase chain reaction for the detection of ***Borrelia*** burgdorferi in human body fluids.
AU Liebling, Michael R. (1); Nishio, Midori Jane; Rodriguez, Annette; ***Sigal, Leonard H.*** ; Jin, Tian; Louie, James S.
CS (1) Div. Rheumatol., Build. E2-South, Harbor-Univ. California at Los Angeles Med. Cent. 1000 West Carson St., Torrance, CA 90509 USA
SO Arthritis & Rheumatism, (1993) Vol. 36, No. 5, pp. 665-675. ISSN: 0004-3591.
DT Article
LA English
AB Objective: To analyze clinical fluids for the presence of ***Borrelia*** burgdorferi DNA using the polymerase chain reaction (PCR). Methods: We utilized a modified, nested PCR to detect the presence of ***Borrelia*** DNA in 99 samples of serum, urine, cerebrospinal fluid (CSF), or synovial fluid obtained from 44 patients with various stages of Lyme disease and 47 control subjects. Primer specificity was corroborated by examining 2 DNA data banks, testing against DNA from other organisms, and confirming results with a second set of nested primers. Results: Nested PCR was capable of detecting DNA from fewer than 10 organisms in 1 ml of fluid. The specificity of this technique was 96.4%, with a sensitivity of 76.7%. Although the specificity was uniformly high, the sensitivity was dependent upon the body fluid being tested: CSF 100%, urine 100%, synovial fluid 80%, and serum 59%. The rate of false-positive results was 3.6%. Conclusion: These data demonstrate the potential utility of PCR in confirming the clinical diagnosis of Lyme disease as well as providing insight into the pathogenesis of various stages of this disorder.

L8 ANSWER 41 OF 46 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
DUPLICATE 14
AN 1993:143424 BIOSIS
DN PREV199395076224
TI Serologic response to the ***Borrelia*** burgdorferi flagellin demonstrates an epitope common to a neuroblastoma cell line.
AU Fikrig, Erol (1); Berland, Robert; Chen, Manchuan; Williams, Stephanie; ***Sigal, Leonard H.*** ; Flavell, Richard A.
CS (1) Sect. Rheumatol., Dep. Internal Med., Yale Univ. Sch. Med., New Haven,

CT 06510 USA
SO Proceedings of the National Academy of Sciences of the United States of America, (1993) Vol. 90, No. 1, pp. 183-187.
ISSN: 0027-8424.
DT Article
LA English
AB Antibodies in sera of 7 patients with neurologic manifestations of Lyme ***borreliosis*** and a monoclonal antibody (mAb H9724) to the flagellin of ***Borrelia*** burgdorferi have been shown to bind neural tissue. To identify the antibody binding site common to the B. burgdorferi flagellin and the neural tissue, we made recombinant fusion proteins expressing epitopes of flagellin. Antibodies in patients' sera and mAb H9724 bound within an 18-amino acid epitope (residues 208-225) in the central region of flagellin, whereas two other mAbs bound to epitopes mapping elsewhere in the protein. Antibodies in patients sera and mAb H9724 also bound to a human neuroblastoma cell line. Absorption of patients sera with a peptide, EGVQQEGAQQPA, corresponding to amino acids 213-224 of flagellin, inhibited binding to the neuroblastoma cell line. The data suggest that the immune response to a specific B-cell epitope within flagellin, shared by a human neuroblastoma cell line, may be involved in the pathogenesis of neuroborreliosis.

L8 ANSWER 42 OF 46 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
DUPLICATE 15
AN 1993:253223 BIOSIS
DN PREV199395132398
TI Molecular mimicry in Lyme disease: Monoclonal antibody H9724 to ***Borrelia*** burgdorferi flagellin specifically detects chaperonin-HSP60.
AU Dai, Zhizhong; Lackland, Henry; Stein, Stanley; Li, Qian; Radziewicz, Robin; Williams, Stephanie; ***Sigal, Leonard H. (1)***
CS (1) Dep. Med., 1 Robert Wood Johnson Place, New Brunswick, NJ 08903 USA
SO Biochimica et Biophysica Acta, (1993) Vol. 1181, No. 1, pp. 97-100.
ISSN: 0006-3002.
DT Article
LA English
AB A monoclonal antibody (H9724), specific for the 41-kDa flagellar protein of the Lyme disease pathogen ***Borrelia*** burgdorferi, cross-reacts with human axons and detects one major protein in human neuroblastoma cell extracts. The homologous cross-reacting protein has now been isolated from calf adrenal and identified as chaperonin-HSP60 by N-terminal sequencing.

L8 ANSWER 43 OF 46 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
AN 1993:194583 BIOSIS
DN PREV199344090833
TI Lyme disease: Testing and treatment: Who should be tested and treated for Lyme disease and how.
AU ***Sigal, Leonard H.***

CS 1 Robert Wood Johnson Place MEB 484, New Brunswick, NJ 08903-0019 USA
SO Rheumatic Disease Clinics of North America, (1993) Vol. 19, No. 1, pp. 79-93.
ISSN: 0889-857X.
DT Article
LA English

L8 ANSWER 44 OF 46 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
AN 1994:9040 BIOSIS
DN PREV199497022040
TI An endemic focus of lyme disease (LD): Molecular detection of ***Borrelia*** burgdorferi (BH) DNA in an asymptomatic population.
AU O'Connor, Carolyn R. (1); ***Sigal, Leonard H.*** ; Goldsmith, Donald; Barton, Diane; Callegari, Peter E.; Weinar, David B.; Williams, William V.
CS (1) UMDNJ/RWJMS, New Brunswick, NJ 08903 USA
SO Arthritis and Rheumatism, (1993) Vol. 36, No. 9 SUPPL., pp. S64.
Meeting Info.: 57th Annual Scientific Meeting of the American College of Rheumatology San Antonio, Texas, USA November 7-11, 1993
ISSN: 0004-3591.
DT Conference
LA English

L8 ANSWER 45 OF 46 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
AN 1993:5716 BIOSIS
DN PREV199395005716
TI Lyme arthritis as the incorrect diagnosis in pediatric and adolescent fibromyalgia.
AU ***Sigal, Leonard H. (1)*** ; Patella, Sondra J.
CS (1) 1 Robert Wood Johnson Pl MEB 484, New Brunswick, N.J. 08903-0019
SO Pediatrics, (1992) Vol. 90, No. 4, pp. 523-528.
ISSN: 0031-4005.
DT Article
LA English
AB In areas endemic for Lyme disease there is increasing concern and anxiety about possible chronic and untreatable manifestations of the disease. The authors have diagnosed fibromyalgia in many patients with chronic musculoskeletal complaints in whom chronic Lyme arthritis had previously been diagnosed as the cause of their joint pains. Fibromyalgia is a common disorder, causing arthralgia (not true arthritis), fatigue, and debility. The repeated and/or long-term antibiotic therapy prescribed for "chronic Lyme disease" is not successful in curing the symptoms of fibromyalgia. Especially in areas where anxiety about Lyme disease is great, it is important to be careful in diagnosing chronic Lyme disease. Fibromyalgia is a potentially treatable and curable cause of chronic complaints and should be considered in the differential diagnosis of "refractory Lyme arthritis."

L8 ANSWER 46 OF 46 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN

AN 1993:39539 BIOSIS
DN PREV199344016389
TI A new focus of Lyme disease (LD) in Southern New Jersey I: Attitudes and knowledge of a population at risk.
AU O'Connor, Carolyn R. (1); Goldsmith, Donald; Barton, Diane; Young, Gary; Aronowitz, Robert; ***Sigal, Leonard***
CS (1) UMDNJ-RWJMS at Camden, Camden, N.J. 08103
SO Arthritis & Rheumatism, (1992) Vol. 35, No. 9 SUPPL., pp. S221. Meeting Info.: 56th Annual Scientific Meeting of the American College of Rheumatology, Atlanta, Georgia, USA, October 11-15, 1992. ARTHRITIS RHEUM ISSN: 0004-3591.
DT Conference
LA English

=> e brunner michael/au
E1 2 BRUNNER MELANIE DR/AU
E2 122 BRUNNER MERLIN A/AU
E3 169 --> BRUNNER MICHAEL/AU
E4 1 BRUNNER MICHAEL A/AU
E5 2 BRUNNER MICHAEL C/AU
E6 1 BRUNNER MICHAEL D/AU
E7 3 BRUNNER MICHAEL G/AU
E8 12 BRUNNER MICHAEL S/AU
E9 11 BRUNNER MICHAEL SCOTT/AU
E10 1 BRUNNER MICHAELA/AU
E11 2 BRUNNER MIHALY/AU
E12 18 BRUNNER MIKAEL/AU

=> s e3-e9 and borrel?
L9 17 ("BRUNNER MICHAEL"/AU OR "BRUNNER MICHAEL A"/AU OR "BRUNNER MICHAEL C"/AU OR "BRUNNER MICHAEL D"/AU OR "BRUNNER MICHAEL G"/AU OR "BRUNNER MICHAEL S"/AU OR "BRUNNER MICHAEL SCOTT"/AU) AND BORREL?

=> dup rem l9
PROCESSING COMPLETED FOR L9
L10 12 DUP REM L9 (5 DUPLICATES REMOVED)

=> d bib ab 1-
YOU HAVE REQUESTED DATA FROM 12 ANSWERS - CONTINUE? Y/(N):y

L10 ANSWER 1 OF 12 CAPLUS COPYRIGHT 2003 ACS on STN DUPLICATE 1
AN 2003:551095 CAPLUS
DN 139:81645
TI Serological assay for detection of antigens sequestered within immune complexes for diagnosis of infectious and autoimmune diseases

IN ***Brunner, Michael***
PA USA
SO U.S. Pat. Appl. Publ., 13 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003134345	A1	20030717	US 2002-197114	20020717

PRAI US 2001-305933P P 20010717

AB The disclosed invention is directed to serol. assays for the diagnosis of infectious and autoimmune diseases in patients by detecting infectious disease-specific antigens or antibodies sequestered within immune complexes (IC) or by detecting autoimmune disease-specific antigens sequestered within IC. The method for detecting an antigen present in an IC comprises isolating an IC, which contains at least one antigen and at least one antibody specific for that antigen, from a sample, then incubating the immune complex under conditions effective to dissoc. the immune complex and sep. the antigen from the antibody. The dissocd. antigen and antibody are then reassocd., and the reassocd. antigen and antibody are sepd. from the soln., using a binding agent on a solid phase. The presence of the antigen is then detected and optionally quantified using an antigen-specific binding reaction. A second method is provided, in which the undissociated immune complexes are bound to a solid surface through an anti-IgM antibody, then are incubated with a biotinylated ext. contg. an antigen specific for the immune complex antibody. The presence of the biotin mol. is detected and optional quantified using a biotin-specific binding reaction. The examples present the detection of Lyme disease proteins (esp. OspA) using agarose beads coated with Ig-binding proteins (first method) and enzyme-linked IgM capture immune complex biotinylated antigen assay (EMIBA).

L10 ANSWER 2 OF 12 USPATFULL on STN
AN 2003:57562 USPATFULL
TI Multiple epitopes connected by a carrier
IN Qiu, Bo, Piscataway, NJ, UNITED STATES
Stein, Stanley, East Brunswick, NJ, UNITED STATES
Zhang, Guobao, Piscataway, NJ, UNITED STATES
Sigal, Leonard, Plainfield, NJ, UNITED STATES
Brunner, Michael , Columbus, NJ, UNITED STATES
Katz, Michael, Freehold, NJ, UNITED STATES
PI US 2003040127 A1 20030227
AI US 2001-982287 A1 20011017 (9)
PRAI US 2000-242819P 20001024 (60)
DT Utility
FS APPLICATION
LREP UMDNJ Office of Patents & Licensing, 335 George Street, Suite 3200, New

Brunswick, NJ, 08901
CLMN Number of Claims: 12
ECL Exemplary Claim: 1
DRWN 4 Drawing Page(s)
LN.CNT 799
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Immunologically invisible carrier molecules connect a plurality of copies of an immunologically active molecule in an immunologic assay

L10 ANSWER 3 OF 12 USPATFULL on STN
AN 2003:57561 USPATFULL
TI Immunological test kit with immunologically invisible carrier
IN Qiu, Bo, East Brunswick, NJ, UNITED STATES
Zhang, Guobao, Piscataway, NJ, UNITED STATES
Stein, Stanley, East Brunswick, NJ, UNITED STATES
Sigal, Leonard H., Plainfield, NJ, UNITED STATES
Brunner, Michael , Columbus, NJ, UNITED STATES
Katz, Michael, Freehold, NJ, UNITED STATES
PI US 2003040126 A1 20030227
AI US 2001-982265 A1 20011017 (9)
PRAI US 2000-242819P 20001024 (60)
DT Utility
FS APPLICATION
LREP LYON & LYON LLP, 633 WEST FIFTH STREET, SUITE 4700, LOS ANGELES, CA, 90071
CLMN Number of Claims: 8
ECL Exemplary Claim: 1
DRWN 4 Drawing Page(s)
LN.CNT 789
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Immunologically invisible carrier molecules connect a plurality of copies of an immunologically active molecule in an immunologic assay.

L10 ANSWER 4 OF 12 USPATFULL on STN
AN 2003:44364 USPATFULL
TI Poly (ethylene glycol) copolymers
IN Qiu, Bo, East Brunswick, NJ, UNITED STATES
Zhang, Guobao, Piscataway, NJ, UNITED STATES
Stein, Stanley, East Brunswick, NJ, UNITED STATES
Sigal, Leonard, Plainfield, NJ, UNITED STATES
Brunner, Michael , Columbus, NJ, UNITED STATES
Katz, Michael, Freehold, NJ, UNITED STATES
PI US 2003031674 A1 20030213
AI US 2001-982300 A1 20011017 (9)
PRAI US 2000-242819P 20001024 (60)
DT Utility
FS APPLICATION
LREP LYON & LYON LLP, 633 WEST FIFTH STREET, SUITE 4700, LOS ANGELES, CA,

90071
CLMN Number of Claims: 7
ECL Exemplary Claim: 1
DRWN 4 Drawing Page(s)
LN.CNT 793
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Immunologically invisible carrier molecules connect a plurality of copies of an immunologically active molecule in an immunologic assay.

L10 ANSWER 5 OF 12 CAPLUS COPYRIGHT 2003 ACS on STN DUPLICATE 2
AN 2002:595415 CAPLUS
DN 137:137266
TI Immunological test kit with ***Borrelia*** burgdorferi epitope
IN Qiu, Bo; Stein, Stanley; Zhang, Guobao; Sigal, Leonard; ***Brunner,*** *** Michael*** ; Katz, Michael
PA USA
SO U.S. Pat. Appl. Publ., 14 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2002106706	A1	20020808	US 2001-982264	20011017
US 2002197271	A1	20021226	US 2001-982259	20011017
US 2003031674	A1	20030213	US 2001-982300	20011017
US 2003040126	A1	20030227	US 2001-982265	20011017
US 2003040127	A1	20030227	US 2001-982287	20011017

PRAI US 2000-242819P P 20001024
AB ***Borrelia*** burgdorferi peptide epitopes are conjugated to PEG copolymer and biotin. These peptide conjugates are then used in test kits, such as ELISA, for detection of anti- ***Borrelia*** antibodies in human serum and hence diagnosis of Lyme disease.

L10 ANSWER 6 OF 12 USPATFULL on STN
AN 2002:343548 USPATFULL
TI Borellia burgdorferi epitope peptides
IN Qiu, Bo, East Brunswick, NJ, UNITED STATES
Zhang, Guobao, Piscataway, NJ, UNITED STATES
Stein, Stanely, East Brunswick, NJ, UNITED STATES
Sigal, Leonard, Plainfield, NJ, UNITED STATES
Brunner, Michael , Columbus, NJ, UNITED STATES
Katz, Michael, Freehold, NJ, UNITED STATES
PI US 2002197271 A1 20021226
AI US 2001-982259 A1 20011017 (9)
PRAI US 2000-242819P 20001024 (60)
DT Utility
FS APPLICATION

LREP LYON & LYON LLP, 633 WEST FIFTH STREET, SUITE 4700, LOS ANGELES, CA, 90071
CLMN Number of Claims: 45
ECL Exemplary Claim: 1
DRWN 4 Drawing Page(s)
LN.CNT 902
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Immunologically invisible carrier molecules connect a plurality of copies of an immunologically active molecule in an immunologic assay.

L10 ANSWER 7 OF 12 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
AN 2001:484317 BIOSIS
DN PREV200100484317
TI Use of serum immune complexes in a new test that accurately confirms early Lyme disease and active infection with ***Borrelia*** burgdorferi.
AU ***Brunner, Michael*** ; Sigal, Leonard H. (1)
CS (1) Division of Rheumatology, 1 Robert Wood Johnson Pl., MEB484, New Brunswick, NJ, 08903-0019: sigallh@umdnj.edu USA
SO Journal of Clinical Microbiology, (September, 2001) Vol. 39, No. 9, pp. 3213-3221. print.
ISSN: 0095-1137.
DT Article
LA English
SL English
AB The present recommendation for serologic confirmation of Lyme disease (LD) calls for immunoblotting in support of positive or equivocal ELISA. ***Borrelia*** burgdorferi releases large quantities of proteins, suggesting that specific antibodies in serum might be trapped in immune complexes (ICs), rendering the antibodies undetectable by standard assays using unmodified serum. Production of ICs requires ongoing antigen production, so persistence of IC might be a marker of ongoing or persisting infection. We developed an immunoglobulin M (IgM) capture assay (EMIBA) measuring IC-derived IgM antibodies and tested it using three well-defined LD populations (from an academic LD referral center, a well-described Centers for Disease Control and Prevention (CDC) serum bank, and a group of erythema migrans patients from whose skin lesions B. burgdorferi was grown) and controls (non-Lyme arthritis inflammatory joint disease, syphilis, multiple sclerosis, and nondisease subjects from a region where LD is endemic, perhaps the most relevant comparison group of all). Previous studies demonstrated that specific antigen-antibody complexes in the sera of patients with LD could be precipitated by polyethylene glycol and could then be disrupted with maintenance of the immunoreactivity of the released antibodies, that specific anti-B. burgdorferi IgM was concentrated in ICs, and that occasionally IgM to specific B. burgdorferi antigens was found in the IC but not in unprocessed serum. EMIBA compared favorably with commercial and CDC flagellin-enhanced enzyme-linked immunosorbent assays and other assays in confirming the diagnosis of LD. EMIBA confirmed early B. burgdorferi

infection more accurately than the comparator assays. In addition, EMIBA more accurately differentiated seropositivity in patients with active ongoing infection from seroreactivity persisting long after clinically successful antibiotic therapy; i.e., EMIBA identified seroreactivity indicating a clinical circumstance requiring antibiotic therapy. Thus, EMIBA is a promising new assay for accurate serologic confirmation of early and/or active LD.

L10 ANSWER 8 OF 12 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
AN 2001:180261 BIOSIS
DN PREV200100180261
TI New method for detection of ***Borrelia*** burgdorferi antigen complexed to antibody in seronegative Lyme disease.
AU ***Brunner, Michael (1)***
CS (1) Department of Rheumatology, Children's Hospital of Philadelphia, 3516 Civic Center Blvd., Abramson Research Center 1104D, Philadelphia, PA, 19104-4318: brunner@email.chop.edu USA
SO Journal of Immunological Methods, (1 March, 2001) Vol. 249, No. 1-2, pp. 185-190. print.
ISSN: 0022-1759.
DT Article
LA English
SL English
AB Serologic tests for Lyme disease are problematic. Because of cross-reactive antigens ***Borrelia*** burgdorferi (Bb) shares with other organisms, Lyme disease can be overdiagnosed. However, in addition to specificity problems, serologic tests for early Lyme disease can be falsely negative due to lack of sensitivity of ELISAs and Western blots. Most routine antibody tests are designed to detect free antibodies, and in early, active disease, circulating antibodies may not be free in serum but sequestered in complexes with the antigens which originally triggered their production. This difficulty may be overcome by first isolating immune complexes (IC) from the serum and using this fraction for testing. Free ***Borrelia*** -specific antibodies can then be liberated from the immune complexes which may enhance test sensitivity in patients with active disease. We developed a technique that captures the antibody component of IC on immunobeads, and subsequently releases the antigen component of IC. Immunoblotting with monoclonal antibody detected at least one antigen to be OspA, thus definitively demonstrating a ***Borrelia*** -specific antigen in circulating IC in early Lyme disease. This test is also useful in demonstrating Bb antigen in otherwise seronegative Lyme disease patients.

L10 ANSWER 9 OF 12 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
DUPLICATE 3
AN 2000:421543 BIOSIS
DN PREV200000421543
TI Immune complexes from serum of patients with Lyme disease contain

Borrelia burgdorferi antigen and antigen-specific antibodies: Potential use for improved testing.

AU ***Brunner, Michael*** ; Sigal, Leonard H. (1)

CS (1) 1 Robert Wood Johnson Place, MEB 484, New Brunswick, NJ, 08903-0019 USA

SO Journal of Infectious Diseases, (August, 2000) Vol. 182, No. 2, pp. 534-539. print.
ISSN: 0022-1899.

DT Article

LA English

SL English

AB We report sequestration of specific IgM anti- ***Borrelia*** burgdorferi (Bb) and Bb antigens within immune complexes (ICs) isolated from serum of patients with Lyme disease (LD). The relative enrichment in specific IgM measured by ELISA was apparent, even after correcting for differences in total IgM concentration in serum versus ICs. Immunoblot demonstrated that ICs contained antibodies against specific Bb proteins, whereas reactivity was absent or significantly lessened in unprocessed serum. This is the first study to show ICs containing Bb antigen identified by immunoblot with anti-Bb monoclonal antibody. ICs may be a useful source of antigen and antibody for development of more-accurate testing for LD.

L10 ANSWER 10 OF 12 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN DUPLICATE 4

AN 1998:229543 BIOSIS

DN PREV199800229543

TI Immunoglobulin M capture assay for serologic confirmation of early Lyme disease: Analysis of immune complexes with biotinylated ***Borrelia*** burgdorferi sonicate enhanced with flagellin peptide epitope.

AU ***Brunner, Michael*** ; Stein, Stanley; Mitchell, Paul D.; Sigal, Leonard H. (1)

CS (1) 1 Robert Wood Johnson Place MEB 484, New Brunswick, NJ 08903-0019 USA

SO Journal of Clinical Microbiology, (April, 1998) Vol. 36, No. 4, pp. 1074-1080.
ISSN: 0095-1137.

DT Article

LA English

AB We previously reported on the efficacy of the enzyme-linked immunoglobulin M capture immune complex (IC) biotinylated antigen assay (EMIBA) for the seroconfirmation of early Lyme disease and active infection with ***Borrelia*** burgdorferi. In earlier work we identified non-cross-reacting epitopes of a number of B. burgdorferi proteins, including flagellin. We now report on an improvement in the performance of EMIBA with the addition of a biotinylated form of a synthetic non-cross-reacting immunodominant flagellin peptide to the biotinylated B. burgdorferi B31 sonicate antigen source with the avidin-biotinylated peroxidase complex detection system used in our recently developed

indirect IgM-capture immune complex-based assay (EMIBA). As in our previous studies, the enzyme-linked immunosorbent assay (ELISA) reactivities of antibodies liberated from circulating ICs (by EMIBA) were compared with those of antibodies in unprocessed serum (antibodies found free in the serum, thus as an IgM-capture ELISA, but not EMIBA, because the antibodies were not liberated from ICs), the sample usually used in standard ELISAs and Western blot assays. The addition of the flagellin epitope enhanced the ELISA signal obtained with untreated sera from many Lyme disease patients but not from healthy controls. In tests with both free antibodies and ICs, with or without the addition of the flagellin epitope to the sonicate, we found the most advantageous combination was IC as the source of antibodies and sonicate plus the flagellin epitope as the antigen. In a blinded study of sera obtained from patients with early and later-phase Lyme disease, EMIBA with the enhanced antigenic preparation compared favorably with other serologic assays, especially for the confirmation of early disease.

L10 ANSWER 11 OF 12 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
AN 1998:157597 BIOSIS
DN PREV199800157597
TI Enzyme-linked IgM capture immune complex biotinylated-antigen assay (EMIBA) detection of anti-B. burgdorferi (Bb) antibodies: A new immunoassay for early and active Lyme disease (LD.
AU ***Brunner, Michael*** ; Stein, Stanley; Sigal, Leonard
CS UMDNJ-Robert Wood Johnson Med. Sch., New Brunswick, NJ 08903 USA
SO Arthritis & Rheumatism, (Sept., 1997) Vol. 40, No. 9 SUPPL., pp. S142. Meeting Info.: 61st National Scientific Meeting of the American College of Rheumatology and the 32nd National Scientific Meeting of the Association of Rheumatology Health Professionals Washington, DC, USA November 8-12, 1997 Association of Rheumatology Health Professionals . ISSN: 0004-3591.
DT Conference
LA English

L10 ANSWER 12 OF 12 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
DUPLICATE 5
AN 1994:391191 BIOSIS
DN PREV199497404191
TI Early and specific antibody response to OspA in Lyme disease.
AU Schutzer, Steven E. (1); Coyle, P. K.; Dunn, John J.; Luft, Benjamin J.; ***Brunner, Michael***
CS (1) UMDNJ New Jersey Med. Sch., Dep. Med., 185 South Orange Ave., Newark, NJ 07103 USA
SO Journal of Clinical Investigation, (1994) Vol. 94, No. 1, pp. 454-457. ISSN: 0021-9738.
DT Article
LA English
AB ***Borrelia*** burgdorferi (Bb), the cause of Lyme disease, has

appeared not to evoke a detectable specific antibody response in humans until long after infection. This delayed response has been a biologic puzzle and has hampered early diagnosis. Antibody to the abundant organism-specific outer surface proteins, such as the 31-kD OspA, has rarely been detected less than 6 mo after infection. Antibody to a less organism-specific 41-kD flagellin protein. sharing common determinants with other bacteria and thus limiting its diagnostic potential, may appear after 4 to 6 wks. To investigate our hypothesis that specific antibody to OspA may actually be formed early but remain at low levels or bound in immune complexes, we analyzed serum samples from patients with concurrent erythema migrans (EM). This is the earliest sign of Lyme disease and occurs in 60-70% of patients, generally 4-14 d after infection. We used less conventional but more sensitive methods: biotin-avidin Western blots and immune complex dissociation techniques. Antibody specificity was confirmed with recombinant OspA. Specific complexed antibody to whole Bb and recombinant OspA was detected in 10 of 11 of the EM patients compared to 0 of 20 endemic area controls. IgM was the predominant isotype to OspA in these EM patients. Free IgM to OspA was found in half the EM cases. IgM to OspA was also detected in 10 of 10 European patients with EM who also had reactive T cells to recombinant OspA. In conclusion a specific antibody response to OspA occurs early in Lyme disease. This is likely to have diagnostic implications.

```
=> e katz michael/au
E1        1    KATZ MEYER/AU
E2        1    KATZ MICAELA/AU
E3      107 --> KATZ MICHAEL/AU
E4        2    KATZ MICHAEL A/AU
E5        7    KATZ MICHAEL B/AU
E6        7    KATZ MICHAEL D/AU
E7       23    KATZ MICHAEL E/AU
E8        1    KATZ MICHAEL ELIOT/AU
E9        8    KATZ MICHAEL G/AU
E10       1    KATZ MICHAEL H/AU
E11       1    KATZ MICHAEL I/AU
E12       9    KATZ MICHAEL J/AU

=> s e3-e12 and borrel?
L11       6 ("KATZ MICHAEL"/AU OR "KATZ MICHAEL A"/AU OR "KATZ MICHAEL B"/AU
           OR "KATZ MICHAEL D"/AU OR "KATZ MICHAEL E"/AU OR "KATZ MICHAEL
          ELIOT"/AU OR "KATZ MICHAEL G"/AU OR "KATZ MICHAEL H"/AU OR "KATZ
           MICHAEL I"/AU OR "KATZ MICHAEL J"/AU) AND BORREL?

=> d bib ab 1-
YOU HAVE REQUESTED DATA FROM 6 ANSWERS - CONTINUE? Y/(N):y

L11  ANSWER 1 OF 6  CAPLUS  COPYRIGHT 2003 ACS on STN
```

AN 2002:595415 CAPLUS
DN 137:137266
TI Immunological test kit with ***Borrelia*** burgdorferi epitope
IN Qiu, Bo; Stein, Stanley; Zhang, Guobao; Sigal, Leonard; Brunner, Michael; ***Katz, Michael***
PA USA
SO U.S. Pat. Appl. Publ., 14 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2002106706	A1	20020808	US 2001-982264	20011017
US 2002197271	A1	20021226	US 2001-982259	20011017
US 2003031674	A1	20030213	US 2001-982300	20011017
US 2003040126	A1	20030227	US 2001-982265	20011017
US 2003040127	A1	20030227	US 2001-982287	20011017

PRAI US 2000-242819P P 20001024
AB ***Borrelia*** burgdorferi peptide epitopes are conjugated to PEG copolymer and biotin. These peptide conjugates are then used in test kits, such as ELISA, for detection of anti- ***Borrelia*** antibodies in human serum and hence diagnosis of Lyme disease.

L11 ANSWER 2 OF 6 USPATFULL on STN
AN 2003:57562 USPATFULL
TI Multiple epitopes connected by a carrier
IN Qiu, Bo, Piscataway, NJ, UNITED STATES
Stein, Stanley, East Brunswick, NJ, UNITED STATES
Zhang, Guobao, Piscataway, NJ, UNITED STATES
Sigal, Leonard, Plainfield, NJ, UNITED STATES
Brunner, Michael, Columbus, NJ, UNITED STATES
Katz, Michael , Freehold, NJ, UNITED STATES
PI US 2003040127 A1 20030227
AI US 2001-982287 A1 20011017 (9)
PRAI US 2000-242819P 20001024 (60)
DT Utility
FS APPLICATION
LREP UMDNJ Office of Patents & Licensing, 335 George Street, Suite 3200, New Brunswick, NJ, 08901
CLMN Number of Claims: 12
ECL Exemplary Claim: 1
DRWN 4 Drawing Page(s)
LN.CNT 799
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Immunologically invisible carrier molecules connect a plurality of copies of an immunologically active molecule in an immunologic assay

L11 ANSWER 3 OF 6 USPATFULL on STN
AN 2003:57561 USPATFULL
TI Immunological test kit with immunologically invisible carrier
IN Qiu, Bo, East Brunswick, NJ, UNITED STATES
Zhang, Guobao, Piscataway, NJ, UNITED STATES
Stein, Stanley, East Brunswick, NJ, UNITED STATES
Sigal, Leonard H., Plainfield, NJ, UNITED STATES
Brunner, Michael, Columbus, NJ, UNITED STATES
Katz, Michael , Freehold, NJ, UNITED STATES
PI US 2003040126 A1 20030227
AI US 2001-982265 A1 20011017 (9)
PRAI US 2000-242819P 20001024 (60)
DT Utility
FS APPLICATION
LREP LYON & LYON LLP, 633 WEST FIFTH STREET, SUITE 4700, LOS ANGELES, CA, 90071
CLMN Number of Claims: 8
ECL Exemplary Claim: 1
DRWN 4 Drawing Page(s)
LN.CNT 789
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Immunologically invisible carrier molecules connect a plurality of copies of an immunologically active molecule in an immunologic assay.

L11 ANSWER 4 OF 6 USPATFULL on STN
AN 2003:44364 USPATFULL
TI Poly (ethylene glycol) copolymers
IN Qiu, Bo, East Brunswick, NJ, UNITED STATES
Zhang, Guobao, Piscataway, NJ, UNITED STATES
Stein, Stanley, East Brunswick, NJ, UNITED STATES
Sigal, Leonard, Plainfield, NJ, UNITED STATES
Brunner, Michael, Columbus, NJ, UNITED STATES
Katz, Michael , Freehold, NJ, UNITED STATES
PI US 2003031674 A1 20030213
AI US 2001-982300 A1 20011017 (9)
PRAI US 2000-242819P 20001024 (60)
DT Utility
FS APPLICATION
LREP LYON & LYON LLP, 633 WEST FIFTH STREET, SUITE 4700, LOS ANGELES, CA, 90071
CLMN Number of Claims: 7
ECL Exemplary Claim: 1
DRWN 4 Drawing Page(s)
LN.CNT 793
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Immunologically invisible carrier molecules connect a plurality of copies of an immunologically active molecule in an immunologic assay.

L11 ANSWER 5 OF 6 USPATFULL on STN
AN 2002:343548 USPATFULL
TI Borellia burgdorferi epitope peptides
IN Qiu, Bo, East Brunswick, NJ, UNITED STATES
Zhang, Guobao, Piscataway, NJ, UNITED STATES
Stein, Stanely, East Brunswick, NJ, UNITED STATES
Sigal, Leonard, Plainfield, NJ, UNITED STATES
Brunner, Michael, Columbus, NJ, UNITED STATES
Katz, Michael , Freehold, NJ, UNITED STATES
PI US 2002197271 A1 20021226
AI US 2001-982259 A1 20011017 (9)
PRAI US 2000-242819P 20001024 (60)
DT Utility
FS APPLICATION
LREP LYON & LYON LLP, 633 WEST FIFTH STREET, SUITE 4700, LOS ANGELES, CA, 90071
CLMN Number of Claims: 45
ECL Exemplary Claim: 1
DRWN 4 Drawing Page(s)
LN.CNT 902
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Immunologically invisible carrier molecules connect a plurality of copies of an immunologically active molecule in an immunologic assay.

L11 ANSWER 6 OF 6 USPATFULL on STN
AN 2002:198606 USPATFULL
TI Immunological test kit with borellia burgdorferi epitope
IN Qiu, Bo, Piscataway, NJ, UNITED STATES
Stein, Stanley, East Brunswick, NJ, UNITED STATES
Zhang, Guobao, Piscataway, NJ, UNITED STATES
Sigal, Leonard, Plainfield, NJ, UNITED STATES
Brunner, Michael, Columbus, NJ, UNITED STATES
Katz, Michael , Freehold, NJ, UNITED STATES
PI US 2002106706 A1 20020808
AI US 2001-982264 A1 20011017 (9)
PRAI US 2000-242819P 20001024 (60)
DT Utility
FS APPLICATION
LREP BREVETS, RODHAIN & PORTE, 3 RUE MONCEY, PARIS, F-75009
CLMN Number of Claims: 30
ECL Exemplary Claim: 1
DRWN 4 Drawing Page(s)
LN.CNT 829
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Immunologically invisible carrier molecules connect a plurality of copies of an immunologically active molecule in an immunologic assay.

=> s burgdorferi and (GMTFRAQEGAFL?)
L12 5 BURGDORFERI AND (GMTFRAQEGAFL?)

=> dup rem l12
PROCESSING COMPLETED FOR L12
L13 5 DUP REM L12 (0 DUPLICATES REMOVED)

=> d bib ab 1-
YOU HAVE REQUESTED DATA FROM 5 ANSWERS - CONTINUE? Y/(N):y

L13 ANSWER 1 OF 5 USPATFULL on STN
AN 2003:57562 USPATFULL
TI Multiple epitopes connected by a carrier
IN Qiu, Bo, Piscataway, NJ, UNITED STATES
Stein, Stanley, East Brunswick, NJ, UNITED STATES
Zhang, Guobao, Piscataway, NJ, UNITED STATES
Sigal, Leonard, Plainfield, NJ, UNITED STATES
Brunner, Michael, Columbus, NJ, UNITED STATES
Katz, Michael, Freehold, NJ, UNITED STATES
PI US 2003040127 A1 20030227
AI US 2001-982287 A1 20011017 (9)
PRAI US 2000-242819P 20001024 (60)
DT Utility
FS APPLICATION
LREP UMDNJ Office of Patents & Licensing, 335 George Street, Suite 3200, New Brunswick, NJ, 08901
CLMN Number of Claims: 12
ECL Exemplary Claim: 1
DRWN 4 Drawing Page(s)
LN.CNT 799
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Immunologically invisible carrier molecules connect a plurality of copies of an immunologically active molecule in an immunologic assay

L13 ANSWER 2 OF 5 USPATFULL on STN
AN 2003:57561 USPATFULL
TI Immunological test kit with immunologically invisible carrier
IN Qiu, Bo, East Brunswick, NJ, UNITED STATES
Zhang, Guobao, Piscataway, NJ, UNITED STATES
Stein, Stanley, East Brunswick, NJ, UNITED STATES
Sigal, Leonard H., Plainfield, NJ, UNITED STATES
Brunner, Michael, Columbus, NJ, UNITED STATES
Katz, Michael, Freehold, NJ, UNITED STATES
PI US 2003040126 A1 20030227
AI US 2001-982265 A1 20011017 (9)
PRAI US 2000-242819P 20001024 (60)
DT Utility
FS APPLICATION

LREP LYON & LYON LLP, 633 WEST FIFTH STREET, SUITE 4700, LOS ANGELES, CA, 90071
CLMN Number of Claims: 8
ECL Exemplary Claim: 1
DRWN 4 Drawing Page(s)
LN.CNT 789
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Immunologically invisible carrier molecules connect a plurality of copies of an immunologically active molecule in an immunologic assay.

L13 ANSWER 3 OF 5 USPATFULL on STN
AN 2003:44364 USPATFULL
TI Poly (ethylene glycol) copolymers
IN Qiu, Bo, East Brunswick, NJ, UNITED STATES
Zhang, Guobao, Piscataway, NJ, UNITED STATES
Stein, Stanley, East Brunswick, NJ, UNITED STATES
Sigal, Leonard, Plainfield, NJ, UNITED STATES
Brunner, Michael, Columbus, NJ, UNITED STATES
Katz, Michael, Freehold, NJ, UNITED STATES
PI US 2003031674 A1 20030213
AI US 2001-982300 A1 20011017 (9)
PRAI US 2000-242819P 20001024 (60)
DT Utility
FS APPLICATION
LREP LYON & LYON LLP, 633 WEST FIFTH STREET, SUITE 4700, LOS ANGELES, CA, 90071
CLMN Number of Claims: 7
ECL Exemplary Claim: 1
DRWN 4 Drawing Page(s)
LN.CNT 793
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Immunologically invisible carrier molecules connect a plurality of copies of an immunologically active molecule in an immunologic assay.

L13 ANSWER 4 OF 5 USPATFULL on STN
AN 2002:343548 USPATFULL
TI Borellia ***burgdorferi*** epitope peptides
IN Qiu, Bo, East Brunswick, NJ, UNITED STATES
Zhang, Guobao, Piscataway, NJ, UNITED STATES
Stein, Stanely, East Brunswick, NJ, UNITED STATES
Sigal, Leonard, Plainfield, NJ, UNITED STATES
Brunner, Michael, Columbus, NJ, UNITED STATES
Katz, Michael, Freehold, NJ, UNITED STATES
PI US 2002197271 A1 20021226
AI US 2001-982259 A1 20011017 (9)
PRAI US 2000-242819P 20001024 (60)
DT Utility
FS APPLICATION

LREP LYON & LYON LLP, 633 WEST FIFTH STREET, SUITE 4700, LOS ANGELES, CA, 90071
CLMN Number of Claims: 45
ECL Exemplary Claim: 1
DRWN 4 Drawing Page(s)
LN.CNT 902
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Immunologically invisible carrier molecules connect a plurality of copies of an immunologically active molecule in an immunologic assay.

L13 ANSWER 5 OF 5 USPATFULL on STN
AN 2002:198606 USPATFULL
TI Immunological test kit with borellia ***burgdorferi*** epitope
IN Qiu, Bo, Piscataway, NJ, UNITED STATES
Stein, Stanley, East Brunswick, NJ, UNITED STATES
Zhang, Guobao, Piscataway, NJ, UNITED STATES
Sigal, Leonard, Plainfield, NJ, UNITED STATES
Brunner, Michael, Columbus, NJ, UNITED STATES
Katz, Michael, Freehold, NJ, UNITED STATES
PI US 2002106706 A1 20020808
AI US 2001-982264 A1 20011017 (9)
PRAI US 2000-242819P 20001024 (60)
DT Utility
FS APPLICATION
LREP BREVETS, RODHAIN & PORTE, 3 RUE MONCEY, PARIS, F-75009
CLMN Number of Claims: 30
ECL Exemplary Claim: 1
DRWN 4 Drawing Page(s)
LN.CNT 829
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Immunologically invisible carrier molecules connect a plurality of copies of an immunologically active molecule in an immunologic assay.